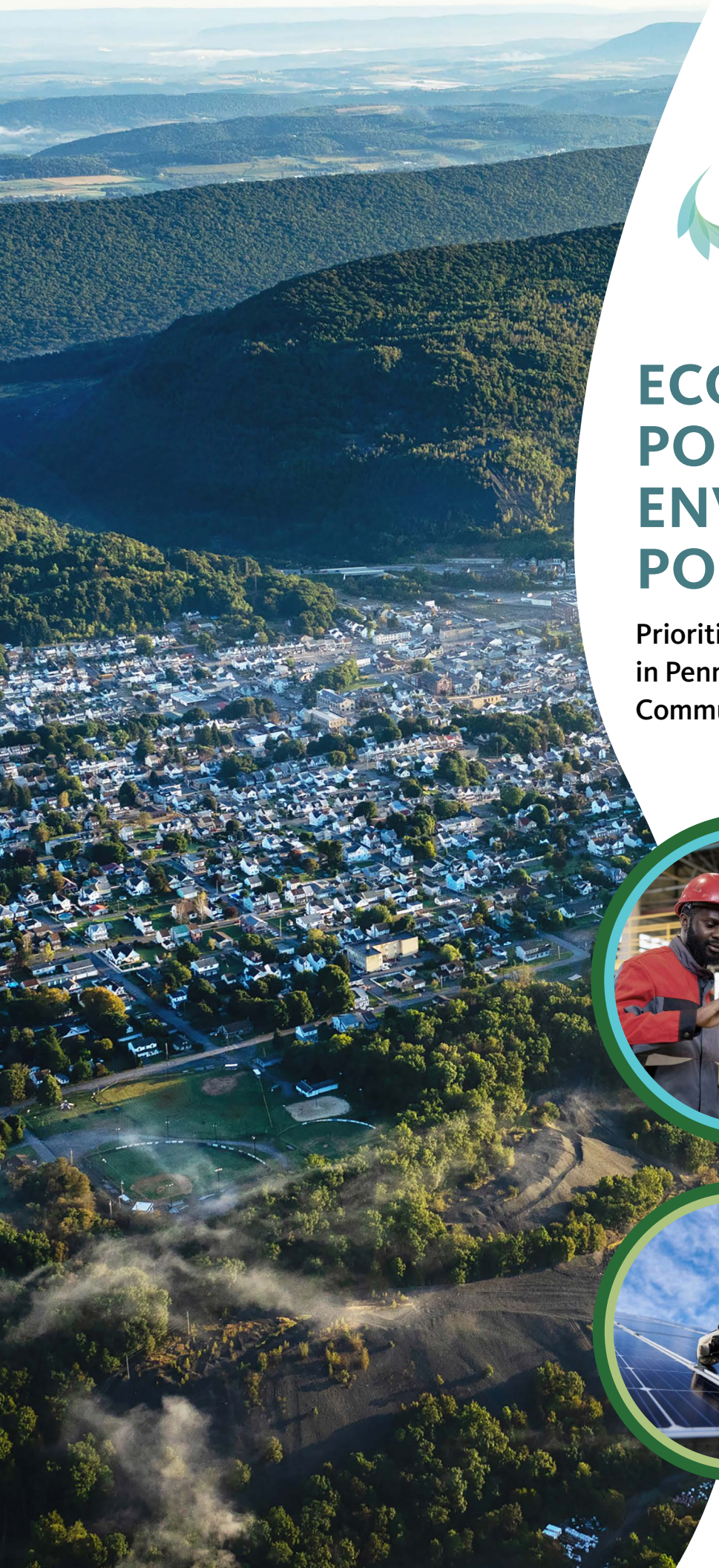

PennFuture

ECONOMIC POLICY *IS* ENVIRONMENTAL POLICY

Prioritizing Environmental Progress in Pennsylvania's Department of Community and Economic Development

June 2024

About PennFuture

Citizens for Pennsylvania's Future ("PennFuture") is a member-supported, statewide environmental advocacy nonprofit and watchdog fighting against potential threats to Pennsylvania's clean air, pure water, and healthy climate. Since 1998, PennFuture has combined legislative advocacy, educational outreach, civic engagement, and legal action at the local, state, and federal levels for just and equitable environmental outcomes that improve the quality of life for all Pennsylvanians.

PennFuture has stood at the forefront of major environmental milestones in Pennsylvania as a bold and vigilant defender of communities against pollution and environmentally harmful policies.

We have offices across Pennsylvania, including Harrisburg, Pittsburgh, Philadelphia, Erie, and the Poconos.

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Cover photo: Shamokin in Northumberland County, Pennsylvania. Clouds form from the emissions of a carbon and graphite manufacturing facility, wafting over a mining operation along Carbon Run as it flows toward Shamokin Creek in Shamokin, Pa., on Sept. 17, 2019.
(Photo by Will Parson/Chesapeake Bay Program with aerial support by Southwings)

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Executive Summary

Economic development shapes and reshapes the physical landscape of our communities—from main streets to country roads, factories to coal mines. The geographic location of projects impacts the way water flows through river basins, the amount of open space available to residents, and the soundscape of our everyday lives. The types of projects determine the quality of the air in a region, the amount of traffic generated at a busy intersection, and the health of the local workforce. *Economic development policy is environmental policy.*

Historically, Pennsylvania's economy has depended upon extraction of fossil fuels. From coal to fracked gas, Pennsylvania has been nearly singularly focused on polluting industries that contaminate our air and water, making our workers and communities sick. Even when market forces signal a change in viability, Pennsylvania has doubled down, propping the industries up with billions of dollars in taxpayer subsidies. Because of this dependence the Commonwealth has fallen behind neighboring industrial states like West Virginia and Ohio, who are actively increasing forward-thinking investments in growing industries like clean energy manufacturing and deployment. The recent influx of federal funding sources combined with the declining market for fracked gas and coal, are rendering dependence on fossil fuels obsolete. Without a change of course, Pennsylvania will fall further behind, and our communities and environment will suffer.

But the pathway to a clean energy economy is here, and opportunities abound. It is time for Pennsylvania to capitalize on high-growth industries that support the decarbonization and diversification of the economy, like battery manufacturing, energy efficiency, and solar deployment. In the face of national economic and technological changes, stabilizing and modernizing Pennsylvania's economy must be paramount.

Continued dependence on fossil fuels is an outdated economic game plan that will destabilize Pennsylvania's economy and perpetuate environmental degradation and injustice.

To accomplish this, Pennsylvania must reconsider how it leverages its economic development tools. The Department of Community and Economic Development (the "Department" or "DCED") drives investments designed to shape the Commonwealth's economy for decades, and therefore plays a critical role in facilitating the transition to a decarbonized economy. By proactively engaging with the current state of play, the DCED can act as a stabilizing force, ensuring that vulnerable communities are not left behind by facilitating new economic opportunities for Pennsylvania workers and businesses during this major economic transition.

First, to take advantage of its strengths, the Department must be reformed and its resources redirected toward industries that support the future of our workforce, communities, and public health, with an eye towards the most vulnerable. Establishing Climate Accountability Measures within its funding structure for program priorities and reshaping the Pennsylvania's Energy Economy program would provide the necessary structure to prioritize clean energy investments and decarbonization efforts.

Second, the Department must leverage its private sector influence through its strategic collaborations with public and private partnerships to facilitate Pennsylvania's transition to a modern and equitable economy, via an aggressive sector-based climate strategy. Pushing to reform Team PA as a champion for Pennsylvania's transition to a decarbonized and diversified economy is the first step, beginning with the intentional inclusion of environmental groups on its private sector board of directors. Subsequently, in order to bolster Team PA's new mission, the state must create an interagency Clean Energy Working Group, which would develop a comprehensive plan that supports environmental justice and energy communities through the strategic deployment of decarbonization, energy efficiency, and renewable energy resources and infrastructure in the Commonwealth of Pennsylvania.

Climate change is driving decarbonization efforts across the country, and we are now seeing the creation of the necessary economic tools to fund them. Continued dependence on fossil fuels is an outdated economic game plan that will destabilize Pennsylvania's economy and perpetuate environmental degradation and injustice. Forward-thinking economic policy that prioritizes the decarbonization and renewable energy sectors can provide long-term certainty for industry and labor in a political climate that breeds instability through battles over environmental policy.

This report demonstrates the Department's vital role in successfully transitioning the state's economy away from destabilizing fossil fuels and ushering in a new era of clean, innovative industry. We highlight Pennsylvania's competitive advantages, show how the state is falling behind, and explain the leverage points available to the Department in order to ensure stability and prosperity for all Pennsylvanians. We will set forth how the DCED can ensure that Pennsylvania's economic policy is environmental policy for the benefit of all: workers, communities, and future generations.

Introduction

This report serves two purposes:

(1) As a source of information for Pennsylvania policy leaders in a time of rapid technological and environmental change and a recognition that Pennsylvania's communities and workforce need an economy that addresses both challenges; and

(2) As an alternative to the false narrative that a healthy environment precludes a robust economy and that continued dependence on fossil fuels will give rise to a stable and prosperous future for Pennsylvanians.

Pennsylvania's Economic Dependence on the Fossil Fuel Industry

Historically, Pennsylvania is known as a national leader in industry, energy, and manufacturing. The Commonwealth played an unmistakably vital role in the industrial revolution, and for two hundred years, family histories were interwoven with coal mining, power generation, and manufacturing. Pennsylvanian's culture celebrates the role workers played fueling the Industrial Revolution, powering homes, and providing steel for skyscrapers.

Over time, however, economic and environmental consequences from the prioritization of extracting polluting resources accumulated in the form of unsafe working conditions, falling wages, and a legacy of industrial degradation. And yet, Pennsylvania's cultural identity and political will allowed the fossil fuel industry to continue with business as usual. Ultimately, Pennsylvania embraced fracked gas—this time with an eye towards building a "bridge" towards a cleaner future, prompting the economic decline of coal. Pennsylvania was so eager to maintain its role as a national leader in energy generation and drive the next energy revolution, that it failed to address the economic and environmental consequences of continuing down the same path.

Perhaps unsurprisingly, the boom-and-bust economic cycle repeated itself. The gas industry received unprecedented levels of tax-payer subsidies alongside lax federal and state regulations and enforcement. Instead of strengthening the economy and energy communities, gas developers fueled an economic bubble that quickly burst as fast as it rose.

Fossil fuel executives now acknowledge that the future for fracking is not promising. The former CEO of EQT, Steve Schlotterbeck, stated, "The industry is self-destructing...The technological advances developed by the industry have been the cause of its slow suicide."[1] Shell, Chevron, and ExxonMobil are all walking away from assets across Appalachia. And for good economic reasons: "between 2010 and 2020 frackers spent $300 billion more to drill for oil and gas than they earned by selling them."[2]

Today, while we see industrial states across the nation taking steps to decarbonize their economies, the Governor's administration outlined an economic development plan intended to shore up petrochemicals, plastics, and hydrogen.

In the end, fossil fuels are not the only resources that these industries extract from communities. They also extract tax-payer dollars in the form of government subsidies, grants, and other financial incentives.[3] They extract the health of our workers and our communities. They extract our clean air and pure water, from current and future generations.

[1] Kathy Hipple and Anne Keller, "Poor Economics for Virgin Plastics," Ohio River Valley Institute, November 2021, 6, https://ohiorivervalleyinstitute.org/wp-content/uploads/2021/11/Poor-Economics-for-Virgin-Plastics-3-min.pdf.

[2] Hipple and Keller, "Poor Economics for Virgin Plastics," 6.

[3] Emily Persico and Rob Altenburg, "Buried Out of Sight: Uncovering Pennsylvania's Hidden Fossil Fuel Subsidies," PennFuture, February 2021, https://www.pennfuture.org/Files/Admin/PF_FossilFuel_Report_final_2.12.21.pdf.

Economic development shapes and reshapes the physical landscape of our communities—from main streets to country roads, factories to coal mines.

There are also opportunity costs to state investments in fossil fuels: they reduce or eliminate funding opportunities for more effective economic multipliers like local businesses and contractors that work in the energy efficiency sector whose economic benefits stay within local and regional communities rather than flowing upwards to national or international corporate headquarters. Our history may have once been inextricably linked to the fossil fuel industry, but as we explain herein, we cannot afford for our future economic development policy to continue that legacy.

Economic Policy Is Environmental Policy

Economic development shapes and reshapes the physical landscape of our communities—from main streets to country roads, factories to coal mines. The geographic location of projects impacts the way water flows through river basins, the amount of open space available to residents, and the soundscape of our everyday lives. The types of projects determine the quality of the air in a region, the amount of traffic generated at a busy intersection, and the health of the local workforce.

One thing is clear: *Economic development policy is environmental policy*.

Unfortunately, decision-makers do not always recognize this simple fact.

While subsidizing the fossil fuel industry, Pennsylvania neglected the social and environmental costs involved. These costs, often referred to as "externalities", include abandoned mine drainage leaching pollution into local waterways, methane flares, fracking fluid spread on dirt roads, and toxic emissions that degrade air quality and hasten climate change. The impacts of these externalities are far too often concentrated in historically underinvested, low-resource communities and communities of color. In short, economic development can come with environmental and health costs that last for generations.

The link between economic development, environmental health, and human well-being is clear. Consequently, the legacy of economic instability and environmental degradation experienced in Pennsylvania can be addressed simultaneously with smarter economic policies and tools that accelerate decarbonization. From this perspective, we see that economic development policies can also reinvigorate energy communities and act as a tool of environmental justice[4]. This reorientation of economic development policy as environmental policy by our elected officials and agencies is vital to re-envisioning Pennsylvania's economic future.

Fortunately, the current administration is revisiting numerous aspects of the Department. By shifting strategies, leadership, and priorities, the DCED can play an instrumental role in meeting the economic and environmental challenges of the present without sacrificing quality of life and economic opportunities for future generations. Such a transformation can drive the Commonwealth towards a more equitable, resilient, sustainable, and healthier future.

4 The DEP's Office of Environmental Justice defines environmental justice as "embod[ying] the principles that communities and populations should not be disproportionally exposed to adverse environmental impacts. Historically, minority and low-income Pennsylvanians have been forced to bear a disproportionate share of adverse environmental impacts." "What is Environmental Justice," PA DEP, last accessed May 24, 2024, https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/pages/default.aspx

CASE STUDY

Shell Cracker Plant—A Costly Mistake

Photo credit: Mark Dixon

Shell received the largest subsidy in Pennsylvania's history—a $1.65 billion tax break to build its ethane cracker facility.[5] Completed in November of 2022, the facility cost a total of $6 billion, and so far, has been an economic disappointment and an environmental nightmare.

Anticipated as the anchor of a large-scale plan to build out fossil fuel infrastructure across Appalachia, the industry hoped for an additional five cracker plants[6], a 500-mile network of pipelines, and two underground storage hubs for liquified natural gas (LNG). All told, the total scope of the project was expected to deliver 10,000 construction jobs, 400 plant jobs[7], and 17,000 adjacent jobs that would support the plant.[8]

However, the cracker plant has yet to deliver on its economic promises. Shell ultimately received more than a billion dollars of public-funded support in the form of state and local tax exemptions[9], which "carry an opportunity cost for taxpayers—namely, that alternative uses of the funds could have been used to grow the regional economy in more direct ways."[10]

So far, the economic development vision for the region has failed in multiple ways. The estimate of the creation of 400 new steady state jobs by Shell was misleading. According to the Ohio River Valley Institute (ORVI), facility jobs would actually result in "a net loss of 150 to 250 jobs compared to the number of employees that were at the site before the zinc smelter was

5 Reid Frazier, "Shell's air pollution violations result in $10 million fine for Beaver County ethane cracker, " *State Impact Pennsylvania*, May 25, 2023, https://stateimpact.npr.org/pennsylvania/2023/05/25/shells-air-pollution-violations-result-in-10-million-fine-for-beaver-county-ethane-cracker/

6 Eric de Place and Julia Stone, "Updated: A Cautionary Tale of Petrochemicals from Pennsylvania," Ohio River Valley Institute, June 2023, 2, https://ohiorivervalleyinstitute.org/wp-content/uploads/2023/06/Updated-A-Cautionary-Tale-of-Petrochemicals-from-Pennsylvania-3.pdf.

7 Nick Messenger, Kathy Hipple, and Anne Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics" Ohio River Valley Institute, January 2024, 21-22, https://ohiorivervalleyinstitute.org/wp-content/uploads/2024/01/Pennsylvanias-Bad-Bet-FINAL.pdf.

8 DePlace and Stone, "Updated: A Cautionary Tale of Petrochemicals from Pennsylvania," 2.

9 According to page 8 of ORVI's report, "Pennsylvania's Bad Bet," the Pennsylvania Resource Manufacturing tax credit, which subsidizes the raw materials processed at Shell's Beaver County facility and expires in 2042, saves the company $1.65 billion. The project also received support from Pennsylvania's Keystone Opportunity Expansion Zone program, which exempted this project from state income tax, local real estate tax, property tax, state and local tax, and occupancy tax. Additionally, Shell received a $10 million grant from DCED's PA First program for site development.

10 Messenger, Hipple, and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics," 4.

shut down, but meets the 400 minimum required for the site to qualify for 15 years of [Keystone Opportunity Expansion Zone] tax exemptions." Between 2015 and 2022, "Beaver County specifically lost 2,296 net total jobs – nearly five times the number of 'new jobs' estimated to be created by Shell."[11] Additionally, three out of the five other facilities canceled their development plans.[12] Moreover, "Beaver County has seen a declining population, zero growth in GDP, zero growth in jobs, lackluster progress in reducing poverty, and zero growth in businesses."[13] The local population is declining. There is no evidence of employment growth, and considering that a national buildout of ethane crackers created a glut on the supply side of the gas industry, resulting in reduced prices, some "industry analysts have suggested that the oversupplied market may never readjust, significantly impacting economics."[14] If the region continues to rely upon this industry and facility for jobs, employment may never rebound and may actually decline.[15]

The facility's environmental impacts and continued violation of regulations adds to its list of economic liabilities, as well. Shell's cracker plant is responsible for emitting "66% of annual petrochemical sector emissions in Pennsylvania."[16] As of the publishing of this report, Shell has had to pay $10 million in air quality fines to the DEP, and is facing even more legal and financial liability from other lawsuits. Given "its significant contributions to annual emissions in the commonwealth (66% of subsector emissions), issues with plant operations that have led to ongoing shutdowns and violations for excessive pollution, and the significant cost that would be required to decarbonize the plant," analysts have concluded that the most beneficial course of action is to retire the facility altogether.[17]

Shell's impact on the health and environment of the local community is not relegated to toxic air pollutant emissions, as the company violates permits and pollutes the environment while constructing pipelines that feed fracked gas to the facility. So far, the company has paid $670,000 in fines for toxic drilling mud spills, which have impacted local waterways, and the Attorney General has also filed criminal charges related to the under-reporting of these spills, which were brought to light by a whistleblower.[18] Ultimately, in addition to being a burden to taxpayers, Shell has proven to be a dangerous neighbor in an already economically and environmentally distressed region.

The reality is that the environmental costs of the facility outweigh any minimal benefit to the local economy.

For now, local poverty remains unabated, and importantly, the regional child poverty rate is higher than both the state and nation[19]. Beaver County has actually fallen behind both the state and the nation in terms of overall economic activity[20]. The reality is that the environmental costs of the facility outweigh any minimal benefit to the local economy.

Rather than offering Shell subsidies, tax incentives[21], and tax relief, state investments could have been made elsewhere with a greater multiplier effect—meaning a more efficient use of taxpayer money resulting in direct economic benefits to the local community and region. Investments in workforce training, energy efficiency, conservation, and small businesses are more effective strategies for creating local wealth because the funds circulate through the regional economy, rather than going back to national or international headquarters of large corporations.[22]

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11 Messenger, Hipple, and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics," 21-22.

12 Beth Gardiner, "Amid Hopes and Fears, a Plastics Boom in Appalachia Is On Hold," *Yale Environment 360*, April 13, 2022, https://e360.yale.edu/features/plans-to-make-appalachia-a-plastics-hub-face-growing-hurdles.

13 de Place and Stone, "Updated: A Cautionary Tale of Petrochemicals from Pennsylvania," 1.

14 Joe Goodenbery, Eliasid Animas, Christina Cilento, Jennifer Gorman, Nina Hebel, and Joe Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," Ohio River Valley Institute, February 2024, 40. https://ohiorivervalleyinstitute.org/wp-content/uploads/2024/02/ORVI-Industrial_Decar_Pathway_Report_Final.pdf.

15 In spite of economic failure at the local and state levels, Team PA recently touted the facility as "a shining example of the long-range vision and planning that accelerate PA as a leader on a national and global scale" in their Team PA News blog posted on their website on March 25, 2024. "Team PA Hits the Road," Team PA, last accessed May 24, 2024, https://teampa.com/2024/03/team-pa-board-hits-the-road/.

16 Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 40.

17 Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 41.

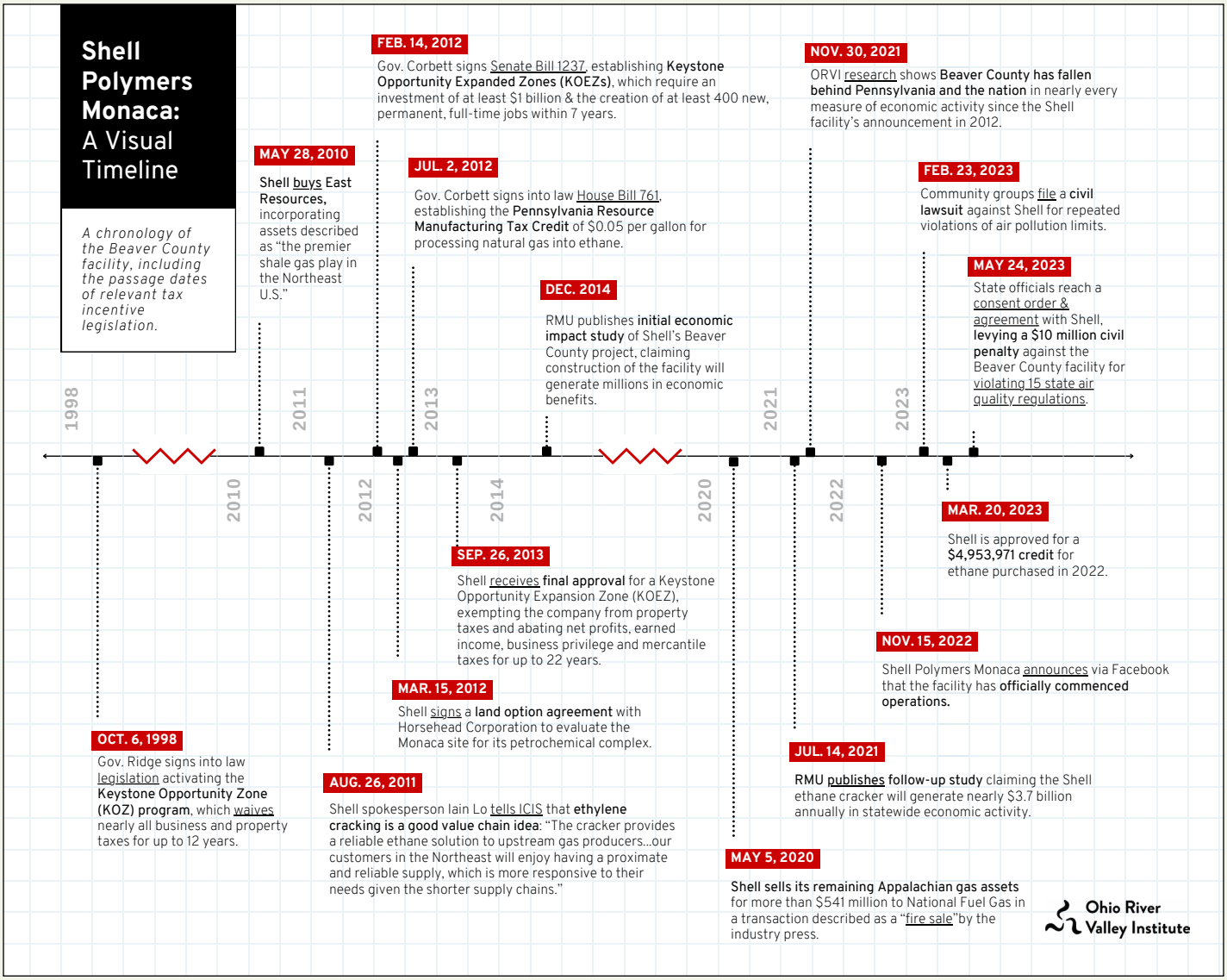
18 Reid Frazier, "Attorney General files criminal charges against Shell on whistleblower reports over pipeline spills," *WESA Pittsburgh*, April 22, 2024, https://www.wesa.fm/environment-energy/2024-04-22/attorney-general-shell-whistleblower-pipeline-spills?utm_source=WESA&utm_campaign=087ba0c34e-inboxedition_COPY_01&utm_medium=email&utm_term=0_-5e22383ecb-%5BLIST_EMAIL_ID%5D.

19 de Place and Stone, "Updated: A Cautionary Tale of Petrochemicals from Pennsylvania," 7.

20 John L. Micek, "Report: Cracker plant hasn't delivered for Beaver Co," *Pennsylvania Capital-Star*, June 27, 2023, https://www.penncapital-star.com/energy-environment/report-cracker-plant-hasnt-delivered-for-beaver-co-tuesday-morning-coffee/.

21 "Pennsylvania seemingly won the project over nearby states by creating a raw material tax credit that directly subsidizes the ethane inputs for Shell's facility." Messenger, Hipple, and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics," 4.

22 Messenger, Hipple, and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics," 7.



Messenger, Hipple and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics," *Ohio River Valley Institute*, January 2023, 13.

Two decades of investments in fracked gas production have generated disappointing results. Painted as a bridge fuel and economic savior for struggling coal communities, this industry promised increased prosperity and opportunities for workers and communities. However, generous investments in fracking methane created market instability. The state government facilitated the industry's avarice, and the government's unwillingness to regulate caused a glut. Prices dropped, and companies experienced negative cash flows, consolidated, and consequently, bankruptcy swept across the gas fields. Now, even though demand is back up, investors are out.[23]

Investing in mega-projects like Shell's facility creates an artificial and ineffective market for fracked gas. Pennsylvanians foot the bill—with their tax dollars, health, and livelihoods. It does not make sense to invest in decline. That economic strategy will not lead to an economically sustainable future for Pennsylvania. Instead, it will distract policy makers from investing in strategies that would help us reach emissions goals, stabilize regional economies, and transition to a renewable-based economy.

[23] Hipple and Keller, "Poor Economics for Virgin Plastics," 6-7.

How Does Pennsylvania Support and Guide Economic Development?

Department of Community and Economic Development

Established in 1996 by Governor Tom Ridge, Pennsylvania's Department of Community and Economic Development is the state's primary driver of economic development policy and sits at the nexus of private and public interests. It receives, redistributes, and administers a combination of public and private funding through numerous programs and initiatives in order to promote the governor's economic development policy priorities.[24]

Like every other state agency, the DCED's budget appropriations flow through the legislative process. Every year, the Department submits a report to the General Assembly that describes its proposed financing strategy for economic development. Specifically, the report contains a five-year plan for its economic development programs; a statement of operations for each program; a description of successes from the previous year; a list of loans, grants, and tax credits approved including any penalties levied by the Department; and performance targets and goals for each program.

The Department's mission [25] has evolved since the current Secretary Rick Siger was appointed to his role. Currently, its mission statement is:

> "Ensure Pennsylvania is a premier state to do business, adopt and innovate the next generation of breakthroughs in a diverse mix of industry clusters, cultivate a resilient economy, and invest in people and communities to build a stronger Pennsylvania that works for all the residents, workers, businesses, and entrepreneurs that call our Commonwealth home."[26]

In order to carry out that mission, the Department has an entire suite of economic tools comprising 196 programs and initiatives. While many of these have been archived, the Department continues to administer a sizable number. The programs address wide ranging economic development issues that include anything from municipal assistance—like Act 47, which supports municipalities experiencing financial distress—to providing grants for workforce training to offering low-interest loan programs to private companies that need to modernize their equipment to investing in marketing to attract tourism to the state. The tools are housed under five umbrellas that aim to further the governor's economic vision for the Commonwealth:

- Job Creation, Workforce Training, Business Growth, and Attraction;
- Pennsylvania Innovation Economy;
- Pennsylvania Worldwide;
- Pennsylvania Assets; and
- Pennsylvania Communities

Each of these umbrella priorities houses the individual programs that administer specific grants, loans, and tax credits.[27]

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[24] PA Act 12 of 2004, S.B. 778, 2004 Leg., Reg. Sess. (Pa. 2004) (Commerce and Trade (12 PA.C.S.)—Codifying portions of Job Enhancement Act, contract requirements, guidelines, and administration and application requirements Keystone Innovation Zones).

[25] DCED's previous mission was simply to "encourage the shared prosperity of all Pennsylvanians by supporting good stewardship and sustainable development initiatives across our commonwealth. With a keen eye toward diversity and inclusiveness, we act as advisors and advocates, providing strategic technical assistance, training, and financial resources to help our communities and industries flourish." "About Us," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/about-us/.

[26] PA Office of the Governor, "Governor's Executive Budget FY24-25," February 6, 2024, E11-1, https://www.budget.pa.gov/Publications%20and%20Reports/CommonwealthBudget/Documents/2024-25%20Budget%20Documents/Budget%20Book%202024-25%20-%20Web%20Version.pdf.

[27] The body of this report focuses on aspects of the DCED that are most pertinent to the ways in which the Department can promote and accelerate Pennsylvania's transition to a clean economy. As mentioned, the Department has a suite of nearly 200 financial tools. It is not the purpose of this report to provide the details of each individual tool. Additional information on several programs and initiatives can be found in the Appendix at the end of the report.

Measuring the Success of Economic Development

The performance of the Department's suite of programs and incentives outlined in its annual Legislative Budget Presentation is detailed through various categories of metrics. The list of metrics includes but is not limited to:

- jobs created
- jobs retained
- jobs supported
- job trainings
- persons participating in job trainings
- tax revenue generated
- public and private funds leveraged
- number of projects

The predominant metric is connected to the context of the program or incentive. For instance, jobs created and retained are a feature in the incentives under the Job Creation, Workforce Training, Business Growth and Attraction umbrella program, while the focus in PA Assets or the Office of International Business Development (OIBD) umbrellas is on generated tax revenue. Within those umbrella programs, each individual incentive and program targets specific sectors and partners, like supporting site remediation for industrial development, providing a financial boost to local governments, or attracting foreign investment.

II. DCED FY2024-25 PROGRAM PERFORMANCE MEASURES

Program: Job Creation, Workforce Training, Business Growth and Attraction	FY2020-21	FY2021-22	FY2022-23 (Actual)	FY2023-24 (Estimated)	FY2024-2025 (Estimated)
Jobs Pledged To Be Created	16,157	2,966	2,738	2,820	2,905
Jobs Pledged To Be Retained	40,622	6,183	7,023	7,234	7,451
Businesses Assisted	3,887	3,254	3,492	3,597	3,705
Private Funds Leveraged ($Thousands)	$4,164,887.40	$445,099.00	$532,631.00	$548,609.93	$565,068.23
Public Funds Leveraged ($Thousands)	$8,517.07	$10,168.00	$47,048.00	$48,459.44	$49,913.22
Number of Trainings to PA Workers (WEDNetPA, PREP, LGTP, CSBG)	89,076	82,228	84,273	86,801	89,405
Program: PA Innovation Economy	**FY2020-21**	**FY2021-22**	**FY2022-23 (Actual)**	**FY2023-24 (Estimated)**	**FY2024-2025 (Estimated)**
Jobs Created	2,362	3,180	2,779	2,819	3,552
Jobs Retained	16,773	13,698	13,730	16,515	21,231
Businesses Assisted	10,253	28,752	28,962	29,831	30,726
Private Funds Leveraged ($Thousands)	$823,875	$1,200,339	$1,573,444	$1,587,847	$1,741,633
Public Funds Leveraged ($Thousands)	$89,643	$209,826	$169,636	$168,735	$184,458
New Technology Companies Established	93	93	133	149	193
Program: PA Assets	**FY2020-21**	**FY2021-22 (Actual)**	**FY2022-23 (Estimated)**	**FY2023-24 (Estimated)**	**FY2024-2025 (Estimated)**
Hotel Rooms Sold (Thousands)	23,701	31,431	32,519	34,733	35,427
Travelers' Expenditures ($Millions)	$33,463	$43,076	$49,925	$50,924	$51,942
Estimated Tax Revenues Generated ($Millions)	$4,720	$4,587	$5,316	$5,422	$5,531
Program: OIBD	**FY2020-21**	**FY2021-22**	**FY2022-23 (Actual)**	**FY2023-24 (Estimated)**	**FY2024-2025 (Estimated)**
Estimated Tax Revenues Generated ($Thousands)	$35,073	$67,415	$40,852	$45,000	$50,000
Export Sales Facilitated ($Thousands)	$434,697	$549,774	$584,605	$596,297	$608,223
FDI: Projects Completed	23	24	20	21	23
Businesses Assisted	606	548	713	725	750
Jobs Supported	7,620	8,888	12,641	13,000	13,350
Program: PA Core Communities	**FY2020-21**	**FY2021-22**	**FY2022-23 (Actual)**	**FY2023-24 (Estimated)**	**FY2024-2025 (Estimated)**
Keystone Community Projects	90	188	174	202	202
Municipal Assistance Program (MAP): Local Governments Assisted	250	39	55	65	75
Strategic Management Planning Program: Local Governments Assisted	28	26	25	44	44
Homes Weatherized	2,026	1,814	1,992	4,104	4,650
Job Training and Human Services: CSBG: Persons Participating	362,950	442,501	475,816	542,430	542,430
Act 47: Designated Distressed Communities Assisted	16	16	13	9	6

Pennsylvania Department of Community and Economic Development, "Legislative Budget Presentation FY2024-25," https://www.legis.state.pa.us/WU01/LI/TR/Transcripts/2024_0509H.pdf

The impact of community and economic development policies and programs extends well beyond workforce numbers and tax revenue. The projects, materials, and development strategies utilized influence the local environment, health of surrounding communities, and the clean energy supply chain. To be competitive in the changing economic landscape, the Department must revise its measures of performance accordingly, to promote investments that take into account community health, climate change, and boost its efforts to strengthen state and regional supply chains through the Buy Pennsylvania initiative.[28]

While the current metric categories, like jobs created and tax revenue generated, make sense in the context of each of DCED's umbrella programs and specific incentives, the Department should take a wider, more holistic view of the impacts of its funding apparatus to evaluate performance:

- First, revise application guidelines to prioritize projects that lend to decarbonization and energy efficiency, and it should collaborate with the DEP to formulate new and additional guidelines for the application process that would allow for the prioritization of decarbonization and energy efficiency strategies, as well as the deployment of photovoltaics.
- Second, create new metrics that track the results of the revised guidelines, effectively redefining success for these programs.
- Third, the existing performance metrics should be revised to disaggregate the number of jobs created, retained, and supported to denote those in clean energy manufacturing, clean energy deployment, and energy efficiency. In partnership with DEP and other collaborators, the DCED should establish methods to determine and track the carbon impacts of projects, making public and explicit the environmental externalities of economic development.

Shifts in the administrative process would signal to municipalities and developers that Pennsylvania prioritizes addressing climate change and protecting community health. Similarly, it would establish forward-thinking anchor regions whose economic and environmental futures are self-determined and could be adapted and adopted across the state. Climate-forward guidelines and metrics would have a similar effect, with the added benefit of gathering baseline data for the number of clean energy jobs created, net-zero buildings constructed, deployment of solar energy, and the like. Again, signaling to developers and, importantly, clean energy manufacturers, that Pennsylvania is reducing its dependence on fossil fuels and is open for sustainable business.

Team PA

Just one year after the Department was established, the Team PA Foundation, a non-partisan, 501(c)(3) entity co-chaired by the governor and a private sector leader, was created in 1997[29]. Although not a Commonwealth agency subject to transparency and accountability, this entity nevertheless has significant power to leverage cross-sector collaboration and public and private investments to grow the state's economy. According to Executive Order 2023-16[30], all state agencies must cooperate with and support Team PA as it works to expand "business opportunities" and accelerate "economic growth". In practice, the organization connects businesses with state decision makers, focusing on business growth, education and workforce development, and government efficiency.

[28] PA Office of the Governor, "Pennsylvania Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)," 2024, 35, https://pagetsitdone.com/wp-content/uploads/EconomicDevelopmentStrategy-DCED_2024_FINAL.pdf.

[29] Team PA's staff consists of a CEO, Chief of Staff, Chief Financial Officer, Managing Director of Energy Initiatives, Energy Policy Director, and Policy Coordinator, among others. It also operates under several sets of Directors, including Private Sector Directors, Public Sector Directors (including the Acting Director of the DCED), Labor Sector Directors, and Directors Emeritus. The Secretary of the DCED sits on the Board of Directors, along with state legislators, industry leaders, and academics.

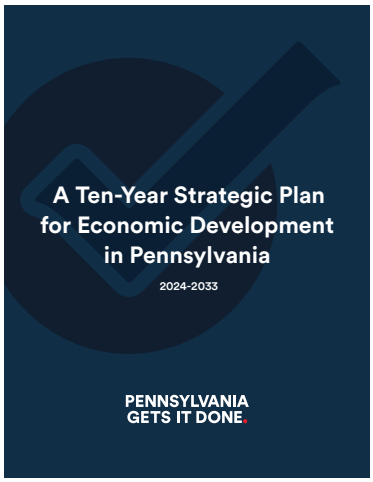
[30] Pa. Exec. Order No. 2023-16 (Public-Private Partnership), June 9, 2023, https://teampa.com/wp-content/uploads/2023/06/Team-PA-Executive-Order-2023.pdf.

Team PA's staff consists of a CEO, Chief of Staff, Chief Financial Officer, Managing Director of Energy Initiatives, Energy Policy Director, and Policy Coordinator, among others. It also operates under several sets of Directors, including Private Sector Directors, Public Sector Directors, Labor Sector Directors, and Directors Emeritus[31]. The Secretary of the DCED sits on the Board of Public Sector Directors alongside state legislators.

Team PA's work directly connects to the Department in several ways: First, Team PA provided the initial funding for the creation of its Office of International Business Development (OIBD). Second, the two groups share a common staff member, Team PA's Director of International Initiatives. It is worth noting that the OIBD's goal is to "leverage Pennsylvania's international business connections – managed and facilitated by the DCED to increase export sales in foreign markets around the world and bring more foreign investment to the Commonwealth."[32] (In 2023, Pennsylvania was the 11th largest state exporter in the nation.[33]) Finally, as it specifically relates to the energy sector, in 2021, Team PA collaborated with the Department to promote a Carbon Capture Utilization and Storage (CCUS) agenda by convening "approximately 30 energy practitioner stakeholders across the public, private, and non-governmental sectors to build on previous work and begin taking steps toward realizing Pennsylvania's potential as a continued national leader in the energy space"[34]. As will be demonstrated later in the report, Team PA, a non-governmental agency, continues to shape Pennsylvania's economic ecosystem.

Governor Shapiro's 10-Year Economic Development Plan: "PA Gets It Done"

For the first time in nearly twenty years, Pennsylvania's Governor produced a comprehensive, statewide economic development plan. Released in February 2024, Governor Shapiro's administration unveiled *PA Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)*[35], and while the plan includes many progressive components, such as broad-based investments in education, innovation, workforce development, outdoor recreation, and agriculture, its energy strategy continues to rely almost exclusively on fossil fuels. As currently written, the plan would deter the development of a clean energy economy for the Commonwealth, and in turn, stagnate economic progress, leaving Pennsylvania to trail behind many other industrial states in the nation that are embracing the opportunities that new clean tech and clean energy investments provide. The approach to energy outlined in *PA Gets It Done* will compromise Pennsylvania's long-term economic goals by coupling it to the volatile short-term economic interests of the fossil fuel industry.



Pennsylvania is both one of the top energy-producing states (second only to Texas)[36] and one of the largest emitters of greenhouse gas emissions in the nation[37]. Accordingly, this new, long-term economic development strategy is one of the most consequential environmental decisions that this administration will make during its tenure serving the Commonwealth.

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31 "Leadership," Team PA, accessed May 24, 2024, https://teampa.com/about/leadership/.

32 PA DCED, "Legislative Budget Presentation FY2024-25," 7, https://www.legis.state.pa.us/WU01/LI/TR/Transcripts/2024_0509H.pdf.

33 "State Benefits of Trade: Pennsylvania," Office of the United States Trade Representative, last accessed May 24, 2024, https://ustr.gov/map/state-benefits/pa.

34 Team Pennsylvania, "Annual Report 2021-2022," 2022, 7, https://teampa.com/wp-content/uploads/2022/12/Team-PA-Annual-Report-2021-22-v7.pdf

35 PA Office of the Governor, "PA Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)," https://pagetsitdone.com/wp-content/uploads/EconomicDevelopmentStrategy-DCED_2024_FINAL.pdf.

36 "State Rankings: Total Energy Production, 2021 (trillion Btu)," U.S. Energy Information Administration, last accessed May 24, 2024, https://www.eia.gov/state/rankings/?sid=PA#series/101

37 "State Rankings: Total Carbon Dioxide Emissions, 2021 (million metric tons)," U.S. Energy Information Administration, last accessed May 24, 2024, https://www.eia.gov/state/rankings/?sid=PA#series/226

The failure to clearly acknowledge the importance of decarbonization for both the climate and the economy hinders the state's ability to capitalize on high-growth industries, like energy efficiency.

PA Gets It Done demonstrates that the transition to clean energy is an afterthought of state policy for this administration through its omission. The plan only addresses climate change twice, for example, and it does so indirectly: (1) within the context of building a dirty hydrogen industry reliant upon fracked gas[38]; and (2) within the context of building electric transmission infrastructure to bring renewable energy resources *into* the state[39], rather than a proactive plan to develop and deploy renewables within the Commonwealth. The failure to clearly acknowledge the importance of decarbonization for both the climate and the economy hinders the state's ability to capitalize on high-growth industries, like energy efficiency. This short-sightedness will have a long-term ripple effect on Pennsylvania's economy.

Throughout the state's history, the fossil fuel industries have consistently failed to deliver long-term financial growth[40] and are detrimental to community health and the environment.[41] They should not be the foundation of an economic development plan intended to carry Pennsylvania through the next 10 years. Ultimately, failure to prioritize decarbonization and renewable energy development weakens Pennsylvania's economic competitiveness because other fossil fuel-producing states like West Virginia[42], Ohio[43], Texas[44], and Mississippi[45] are adapting and modernizing, quickly diversifying their economies to leverage renewable energy, with great economic success. While climate change may not be a priority for the leaders in these states, economic development and competitiveness is, which is why, regardless of their prioritization of environmental issues, they are prioritizing the transition away from fossil fuels towards clean energy and the adjacent industries that support its development and deployment.

PA Gets It Done's energy sector focus on the fossil fuel industry diverts attention and resources away from proactively attracting sustainable businesses and manufacturing renewable energy components. Instead, the administration must develop a clear strategy to increase Pennsylvania's competitiveness in the decarbonization sector and proactively solicit environmentally and economically sustainable businesses. Such a plan could maintain the state's role as an energy powerhouse and ensure its relevance in the regional and national economy of the future.

If that plan were developed, the DCED is well-positioned to play a strategic role. As explained herein, discrete shifts in its policy priorities, funding initiatives, and administrative structure could provide robust and systemic support to secure a successful economic and energy transition for the Commonwealth.

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38 PA Office of the Governor, "Pennsylvania Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)," 21.

39 PA Office of the Governor, "Pennsylvania Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)," 20.

40 Messenger, Hipple, and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics."

41 While there are countless studies on the impact of fossil fuels at the community level, a recent example is the report by Wuyue Yu and George Thurston, "An Interrupted Time Series Analysis of the Cardiovascular Health Benefits of a Coal Coking Operation Closure", Environmental Research Health (July 2023).

42 Scott Patterson, "Old West Virginia Steel Mill Becomes A Green-Energy Powerhouse," *Wall Street Journal*, September, 17, 2023, https://www.wsj.com/business/entrepreneurship/old-west-virginia-steel-mill-becomes-a-green-energy-powerhouse-2f67ee3c

43 Mark Williams, "Honda, LG Energy hit milestone with EV battery plant in Fayette County," *The Columbus Dispatch*, June 21, 2023, https://www.dispatch.com/story/business/automotive/2023/06/21/first-steel-beam-goes-up-for-ohio-honda-lg-battery-plant-for-evs/70339113007/

44 William Brangham and Caleb Hellerman, "Texas goes green: How oil country became the renewable energy leader," PBS, December 4, 2023, https://www.pbs.org/newshour/show/texas-goes-green-how-oil-country-became-the-renewable-energy-leader

45 Emily Pettus, "Mississippi legislators approve incentives for a factory that would make EV batteries," *AP News*, January 18, 2024, https://apnews.com/article/mississippi-ev-battery-plant-special-session-45399bd35a6c11fe303fb2a919557cfd

CASE STUDY

Proposed Pennsylvania Climate Emissions Reduction Act (PaCER) and Pennsylvania Reliable Energy Sustainability Standard (PRESS)

On March 13, 2024, Gov. Shapiro announced two proposed programs as part of a new energy strategy. PaCER would establish a carbon cap-and-invest program that would remove the Commonwealth from the Regional Greenhouse Gas Initiative and create a Pennsylvania-specific trading program. PRESS would be an update to Pennsylvania's Advanced Energy Portfolio Standard (AEPS) and establish four tiers of energy that must be included in our state's energy portfolio, including a broadly renewable energy tier that reaches 35 percent by 2035. Both programs would require legislation to be enacted.

PennFuture remains committed to RGGI implementation but we are open to a program like PaCER so long as it achieves the same or better emissions reductions. The organization is also supportive of the ambitious 35 percent target in PRESS.

However, what is notable in the context of this report is that the PaCER and PRESS initiatives also are to date not part of any strategy that DCED has adopted or touted. As of this writing (mid-April 2024), no mention of the programs appears on the DCED or the Team PA webpages. This despite the fact that, according to the press release announcing the initiatives, PaCER will "invest in new job-creating clean energy projects" and PRESS will "create 14,500 jobs."[46]

The seeming lack of attention on the economic development side of government feels like a missed opportunity to better align the state's environmental and economic policy. DCED should address what it feels its role is in advancing these critical economic initiatives.

[46] Office of the Governor of Pennsylvania, "Governor Josh Shapiro's Energy Plan Builds on Pennsylvania's Legacy of Energy Leadership by Protecting and Creating Energy Jobs and Lowering Electricity Costs for Consumers," Press Release, March 13, 2024, https://www.governor.pa.gov/newsroom/governor-josh-shapiros-energy-plan-builds-on-pennsylvanias-legacy-of-energy-leadership-by-protecting-and-creating-energy-jobs-and-lowering-electricity-costs-for-consumers/.

The DCED's Role in How PA Gets It Done

PA Gets It Done recognizes the need to update Pennsylvania's economic vision and reform its existing tools. This shift is reflected in the 2024-2025 Executive Budget, which outlines the Department's five programs and goals, each one newly revised from the previous year with proactive and ambitious language, using words like "reignite," "capitalize," "launch," and "champion." Notably, each program connects directly to Governor Shapiro's 10-year plan, echoing his intention to elevate Pennsylvania to the national and international stages.

The Department's reformation requires "real investments in tools that work, eliminating outdated and underutilized programs, and creating additional, flexible funding mechanisms to provide both large corporations and small businesses with more opportunities to succeed and grow in Pennsylvania."[47] While the plan offers little detail regarding the scope of anticipated reform, the programs that were highlighted will doubtless play pivotal roles in the future of the Commonwealth's economy.

These programs tie back to five priority economic sectors identified by the Plan: Life Sciences, Robotics and Technology, Agriculture, Manufacturing, and Energy. Specifically, the DCED's Pennsylvania Innovation Economy program aims to create the connective tissue that successfully weaves all five sectors together:

> "To capitalize on our leadership in research and development by creating access to capital and technical assistance for entrepreneurs to commercialize new and emerging innovations. This commercial activity provides job growth in key sectors such as Life Sciences, Robotics and Technology, Agriculture, Manufacturing, and Energy, all while strengthening the resilience and interconnectivity of our supply chains and deepening cross-sector collaboration." [48]

The strategic purpose of this program is notable because the Department's overall scope has historically been diffuse, covering a broad-spectrum of economic development issues ranging from financially distressed municipalities, to workforce development, energy exports, and even the commercialization of new technologies. Notably, *PA Gets It Done* zeroes in on specific priorities within the established key sectors, two of which could have a particularly acute impact on Pennsylvania's environment and the planet's climate—Manufacturing and Energy. The energy-intensive nature of manufacturing and the polluting legacy of energy highlight the need for thoughtful policies that support economic stability and protect local communities and the environment.

Initiatives that support manufacturing exist within DCED's Job Creation, Workforce Training, Business Growth, and Attraction priority. Namely, the PA First[49] program facilitates funding for various parts of a development project, including but not limited to land acquisition and environmental assessment and remediation. The pilot initiative called Pennsylvania Strategic Investments to Enhance Sites (PA SITES) falls under this category. PA SITES offers grant funding to support industrial site development and, as of the release of this report, is slated for a proposed increase in the Executive Budget for a total of $500 million. The funding can alleviate the heavy costs of remediating and preparing large industrial sites[50], which can be of particular interest to the manufacturing sector, and in turn, entities interested in leveraging that sector for local economic development, like municipalities, economic development organizations, and industrial development agencies.

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47 PA Office of the Governor, "Pennsylvania Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)," 29.

48 PA Office of the Governor, "Governor's Executive Budget FY24-25," E11-1.

49 PA Gets It Done considers PA First to be underfunded, and the Executive Budget calls for a $9 million investment in the program. PA Office of the Governor, "Pennsylvania Gets It Done: A Ten-Year Strategic Plan for Economic Development in Pennsylvania (2024-2033)," 29.

50 "Pennsylvania Strategic Investments to Enhance Sites Program (SITES)," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/programs/pennsylvania-strategic-investments-to-enhance-sites-program-pa-sites/.

This umbrella program also houses the Department's Energy Program, which, with its current focus on dirty energy, will have serious long-term implications for the health of Pennsylvania's communities and the stability of the climate. This initiative allows the Department to leverage two aspects of the state's industrial heritage. First, a focus on the state's predominant energy assets:

> "Pennsylvania's massive stake in global energy to develop home grown energy resources and attract energy intensive industries to the state, attracting investments that enhance Pennsylvania's manufacturing base by utilizing energy assets."

Second, the redevelopment of shuttered coal-fired power plants:

> "Utilizing Pennsylvania Energy Horizons, a statewide public-private network, to obtain feedback from stakeholders allows the department to refine where Pennsylvania should focus its energy efforts and support the state's interest in redeveloping decommissioned coal-fired power plants."[51]

The focus on attracting "energy intensive" industries implies that this initiative's goal is to facilitate access to the Marcellus Shale gas region, especially in the context of Appalachian Regional Clean Hydrogen Hub's (ARCH2) need for access to fracked gas. This partnership crystallizes a codependent relationship between manufacturing and fossil fuels, potentially installing artificial economic and technical barriers for a transition to clean manufacturing in order to maintain a declining market for fracked gas. Moreover, the Department's reliance on the Energy Horizons Cross-Sector Collaborative[52] raises additional concerns about fossil fuel development and deployment. Creating "playbooks" for the redevelopment of coal-fired power plants is laudable—these are large parcels that are contaminated and require large financial investments to clean up and develop. It makes sense to create tools that provide data and analysis specific to each site to connect developers to sites and to facilitate development. This project attempts to draw much-needed attention to brownfield development and attract investors and developers by doing some of the pre-work for them. However, the Energy Horizons collaborative is concentrated on the deployment of hydrogen and CCUS. Their tunnel-vision focuses on expanding the reach and extending the life of fossil fuels, which is displayed in some of the Playbooks' recommendations for new uses of these sites.

Notwithstanding, there is great opportunity should the PA Energy Economy program be reformed. By shifting its focus to facilitating the transition to a diversified, decarbonized economy, the Commonwealth could develop a roadmap to becoming a hub of renewable energy generation and sustainable manufacturing. That shift would lead to a more resilient and efficient in-state supply chain, cost savings through energy efficiency, and jobs in adjacent industries to support industrial energy efficiency projects, as we see in other states. The DCED should utilize an existing tool and create another set of playbooks that would identify prime and environmentally impacted sites for the deployment of renewables, such as solar, provide information about co-locating manufacturing facilities to maximize energy efficiency, and share decarbonization strategies. Ultimately, these new playbooks would let business and industry know that Pennsylvania is open for renewable energy, decarbonization, and sustainable manufacturing. This program is a prime example of the potential for DCED to clear a path to a more sustainable future for Pennsylvania.

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[51] PA Office of the Governor, "Governor's Executive Budget FY24-25," E11-1.

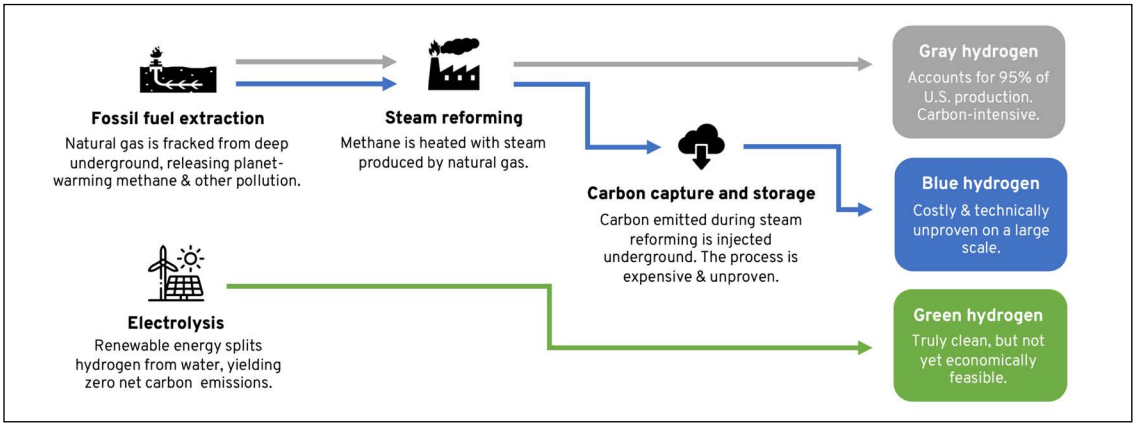
[52] "Collaborative," Pennsylvania Energy Horizons, last accessed May 24, 2024, https://pennsylvaniaenergyhorizons.org/collaborative.

Team PA, PA Energy Horizons, and CCUS

In 2018, Team PA convened over 50 stakeholders to discuss the future of Pennsylvania. Those convenings produced the visionary Pennsylvania Energy Horizons document, which describes two potential future scenarios for the Commonwealth's energy future. Straying from the traditional and practical Team PA "playbooks", this document reflects on the impending energy transition and puts forth two different, broad visions for the state in an effort to provide insight for energy industry stakeholders. These visions, called "Rivers" and "Roots", play out two different energy use and sector demand scenarios over the course of 25 years. In "Rivers", Pennsylvania "pursues a strategy around energy to become a vanguard of the 4th industrial revolution, and reduces carbon dioxide through a confluence of policy and technology".[53] In "Roots", "The energy system evolves around regional investments leading to natural gas, distributed energy generation, and renewables growth, with decreases in carbon dioxide realized partly through slower economic growth and locally-inspired energy solutions."[54] While one vision focuses on global competitiveness fueled by fracked gas and CCUS[55], the other works to localize energy through renewables, electrification, and microgrids.[56]

Years later, in July 2022, the Pennsylvania Energy Horizons Cross-Sector Collaborative[57] launched. This Collaborative is described as a statewide public-private network focused on identifying emissions reduction strategies driven by market forces. Led by Team PA and co-chaired by the governor, it connects private sector businesses with government officials to create policy and regulatory frameworks that facilitate infrastructure investments.[58]

The Collaborative expands on Team PA's partnership with the previous Wolf administration, which focused on CCUS and hydrogen. This partnership with Governor Wolf culminated with the creation of the CCUS Interagency Workgroup, composed of representatives from DCNR, DEP, and DCED, in 2019. It connected industry with technical, regulatory, and economic professionals to support its push to elevate and accelerate the development of hydrogen and CCUS.[59] Subsequently, in 2021, Pennsylvania signed onto the eight-state Regional Carbon Dioxide Transport Infrastructure Action Plan[60], which outlines



Eric de Place, "Hydrogen 101," Ohio River Valley Institute, August 16, 2021, https://ohiorivervalleyinstitute.org/hydrogen-101/.

53 Pennsylvania Energy Horizons Cross-Sector Collaborative, "Pennsylvania Energy Horizons," 2, https://teampa.com/wp-content/uploads/ 2019/04/PEH-Booklet-Final.pdf

54 Pennsylvania Energy Horizons Cross-Sector Collaborative, "Pennsylvania Energy Horizons," 2.

55 Pennsylvania Energy Horizons Cross-Sector Collaborative, "Pennsylvania Energy Horizons," 10.

56 Pennsylvania Energy Horizons Cross-Sector Collaborative, "Pennsylvania Energy Horizons," 14.

57 "Collaborative," Pennsylvania Energy Horizons, last accessed May 24, 2024, https://pennsylvaniaenergyhorizons.org/collaborative.

58 "Collaborative," Pennsylvania Energy Horizons, last accessed May 24, 2024, https://pennsylvaniaenergyhorizons.org/collaborative.

59 PA DCNR, "Carbon Capture Utilization and Storage (CCUS) in Pennsylvania," March 5, 2021, 2, https://environmental.pasenategop.com/wp-content/uploads/sites/34/2021/03/PA_DCNR_CCUS_Brief_3-5-2021.pdf

60 CO2 Transport Infrastructure MOU Signatory States, "Regional Carbon Dioxide Transport Infrastructure Action Plan," https://betterenergy.org/wp-content/uploads/2021/10/Regional-CO2-Transport-Infrastructure-MOU-Action-Plan.pdf

strategies to incentivize the deployment of CCUS, including financial incentives and partnerships, in order to continue supporting extractive energy industries while reducing emissions and creating high-paying jobs.[61]

More recently, Team PA CEO, Abby Smith, provided testimony to the Pennsylvania Senate Democratic Policy Committee in which she doubled-down on hydrogen: testifying that the organization is a "champion" of hydrogen, viewing it as "a critical driver of Pennsylvania's economic prosperity, its environmental revitalization, and its role in a rapidly shifting national and international energy paradigm".[62] The primary example of this championing is the Decarbonization Network of Appalachia Hydrogen Hub (DNA), which is discussed in greater detail later in this report. Team PA partnered with Shell and Mitsubishi to apply for federal funds for the development of this hydrogen hub. Although DNA was not selected by DOE to progress into the second round (and Shell has since pulled out of the project), Smith nevertheless maintains that the project:

> "remains commercially viable and there is still strong interest in advancing this transformative project. DNA also looks to be a key part of the connective tissue which can bring together the two hydrogen hub entities that share common footprint in Pennsylvania, creating a wider, quicker, more just, and more significant energy transition within the Commonwealth." [63]

Pennsylvania's Manufacturing Competitiveness Playbook...offers a roadmap to shape the future of this sector.

It is this determination in the face of great economic headwinds that demonstrates the single-mindedness of Team PA and its industry partners, e.g. Mitsubishi sits on its board. Forging ahead with a vision for a comprehensive hydrogen buildout for an entire corner of the state regardless of the lack of financial resources or viability of the project. Much like the DCED's Pennsylvania Energy Economy program, there is a need for Team PA to accept the economic reality and pivot to proven, albeit less flashy, decarbonization strategies like energy efficiency, building retrofitting, material efficiency, and on-site solar.

Alongside energy, Team PA also devotes time and resources to supporting in-state manufacturing. The organization serves on the Pennsylvania Manufacturing Advisory Council (PAMAC), which was launched in July 2021 in partnership with the DCED. With support from the Department, PAMAC generates attention for manufacturing and works to unify the voice of manufacturers at the state level. In September 2022 Team PA collaborated with stakeholders in this sector to release *Pennsylvania's Manufacturing Competitiveness Playbook*.[64] This playbook outlines both the strengths of and challenges facing Pennsylvania's manufacturers today, and through information gathered through surveys and dialogue with stakeholders, offers a roadmap to shape the future of this sector.

While the concerns expressed by stakeholders are wide-ranging, there is some overlap between a few environmental issues. For instance, manufacturers are interested in strengthening the in-state supply chain, manufacturing batteries and components for renewables, and improving material efficiency at their facilities. PAMAC acknowledges that change is inspired by leadership. Specifically, it calls on the governor to identify "real world" issues that the manufacturing sector can address, maintaining that Pennsylvania can be a global leader in "sectors that bring together and build on the Commonwealth's existing areas of research, development, innovation, and manufacturing strength."[65] Given their interest in manufacturing batteries and supporting renewables, there is no reason why climate change cannot be the real world issue this sector helps to tackle.[66]

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61 CO_2 Transport Infrastructure MOU Signatory States, "Regional Carbon Dioxide Transport Infrastructure Action Plan," 1.

62 Abby Smith, "Written testimony submitted to the Pennsylvania Senate Democratic Policy Committee," December 4, 2023, available at https://www.senatormuth.com/wp-content/uploads/2023/12/Team-Pennsylvania-Foundation.pdf.

63 Smith, "Written testimony submitted to the Pennsylvania Senate Democratic Policy Committee," December 4, 2023.

64 Pennsylvania Manufacturing Advisory Council, "Pennsylvania's Manufacturing Competitiveness Playbook," September 2022, https://teampa.com/wp-content/uploads/2022/08/PA-Playbook-Final_08312022rs.pdf.

65 Pennsylvania Manufacturing Advisory Council, "Pennsylvania's Manufacturing Competitiveness Playbook," 19.

66 The playbook actually cites Michigan's investments in climate change as proof of concept. The state "just made a $1.4 billion investment in addressing climate change by fostering the transformation of personal transportation," becoming " a global hub for electrical vehicle manufacturing." Pennsylvania Manufacturing Advisory Council, "Pennsylvania's Manufacturing Competitiveness Playbook," 22.

CASE STUDY

Hydrogen Hubs

Office of Clean Energy Demonstrations, "Appalachian Regional H2Hub Community Briefing," October 24, 2023, 16, https://www.energy.gov/sites/default/files/2023-10/H2Hubs_Appalachian_Community_Briefing.pdf

In September 2022, the Department of Energy (DOE) announced that it was soliciting applicants for its Regional Clean Hydrogen Hub Program (H2Hubs)[67], which would direct billions of dollars to large-scale hydrogen projects across the nation through the Infrastructure Investment and Jobs Act (IIJA). According to the DOE "the H2Hubs will form the foundation of a national clean hydrogen network that will contribute substantially to decarbonizing multiple sectors of the economy, like heavy industries (steel and cement production) and heavy-duty transportation."[68] The project is primarily focused on scaling-up hydrogen production to create and foster economically viable regional markets for hydrogen in order to meet the nation's climate goals.[69]

A total of three applications included Pennsylvania:

1. ARCH2
2. MACH2
3. DNA H2Hub

The Appalachia Regional Clean Hydrogen Hub (ARCH2)[70] is a WV-OH-PA-based "blue"[71] hydrogen project and will utilize fracked-gas methane along with carbon capture and storage (CCS) technologies to produce hydrogen and mitigate carbon emissions. The Mid-Atlantic Clean Hydrogen Hub (MACH2) is a PA-NJ-DE-based "green" hydrogen project and will utilize renewable energy to produce hydrogen.[72] Both the ARCH2 and MACH2 projects were selected by DOE and are in negotiations with the DOE at the time of this report's publication. However, the Decarbonization Network of Appalachia (DNA) project, another "blue" hydrogen hub that would be based in OH-PA-WV[73], was not awarded federal funds.

MACH2 could be awarded up to $750 million and aims to generate green and pink hydrogen (powered by nuclear energy) while utilizing existing infrastructure in the region, like pipelines. The hydrogen produced will be used in heavy industry and to fuel heavy duty transportation. The vision of success for

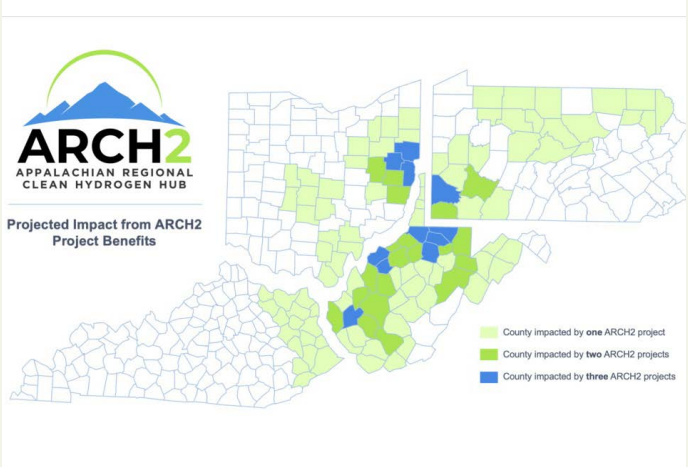
67 "Regional Clean Hydrogen Hubs," Office of Clean Energy Demonstrations, last accessed May 24, 2024, https://www.energy.gov/oced/regional-clean-hydrogen-hubs-o.
68 "Regional Clean Hydrogen Hubs."
69 "Regional Clean Hydrogen Hubs."
70 Appalachian Regional Hydrogen Hub, https://www.arch2hub.com/.
71 "Clean Energy 101: the Colors of Hydrogen," RMI, last accessed May 24, 2024, https://www.arch2hub.com/.
72 "Mid-Atlantic Clean Hydrogen Hub," https://mach-2.com/.
73 Decarbonization Network of Appalachia, https://www.decarbonizationnetworkofappalachia.org/.

MACH2 includes the reuse of existing infrastructure; retention and creation of good-paying jobs through upskilling and retraining; health improvements for marginalized communities; potential for expansion across a broader geography and connection with other hubs.[74] At its peak, the project could create as many as 20,000 jobs.[75]

In contrast, ARCH2 will take advantage of the cheap regional (PA-based) fracked gas supply. This project is "centered in the nation's second-largest natural gas-producing region, which provides an abundance of end-use opportunities across multiple sectors."[76] ARCH2 could be awarded up to $925 million and create as many as 21,000 jobs, including construction.[77] Led by Columbus, Ohio-based Battelle, development partners also include CNX, EQT,[78] and KeyState Energy.[79] Similar to MACH2, ARCH2 plans to take advantage of existing pipeline and transportation infrastructure in the region, and it will leverage access to Midwest and Northeast end use markets.[80],[81]

Unlike ARCH2 and MACH2, the DNA hub was denied access to billions of dollars in federal funding. As of the publishing of this report, DNA's prime applicant, Team PA, intends to press on with its vision of a project supported by industry and labor that leverages the Marcellus Shale gas reserves and proximity to Shell's ethane cracker plant in Beaver county. The plan was for Team PA to also manage the project's future implementation. Industry leaders involved in the project at varying times included Mitsubishi, Shell, and Equinor (a Norwegian oil and gas company).

DNA promised to "unlock affordable, clean hydrogen and decarbonize the supply chains, manufacturing, and power production in America's industrial heartland."[82] Ultimately, the project would facilitate the use of methane for polymer manufacturing and energy production, essentially seeding and establishing an artificial market for the failing fracked gas industry. And yet, both Shell and Equinor pulled out of the DNA project before the Biden administration announced which applicants would move onto the next round of the DOE's program.



Appalachian Regional Hydrogen Hub, "Why ARCH2," https://www.arch2hub.com/about/why-arch2/

Even though the Marcellus Shale region has an abundance of methane, these energy titans shifted their focus overseas to develop green hydrogen, wary of economic risk associated with dirty hydrogen. Equinor has a history of failed attempts at CCS projects[83] and can attest to the risk involved in developing dirty hydrogen at-scale. The company aborted a CCS project because the storage reservoir was at risk of collapsing,[84] and it halted a second because the injected CO_2 was polluting the methane extracted from the site.[85] In 2012, when Equinor was known as Statoil, it shutdown its Mongstad CCS[86] plant after just about

74 "About MACH2," Mid-Atlantic Clean Hydrogen Hub, last accessed May 24, 2024, https://mach-2.com/about-mach2.

75 Office of the Governor, "Governor Shapiro Gets Stuff Done: Securing Two Hydrogen Hub Projects, Plugging Abandoned Wells, Creating Jobs, & Protecting Public Health and the Environment," December 14, 2023, https://www.governor.pa.gov/newsroom/governor-shapiro-gets-stuff-done-securing-two-hydrogen-hub-projects-plugging-abandoned-wells-creating-jobs-protecting-public-health-and-the-environment/.

76 "Why ARCH2," Appalachian Regional Clean Hydrogen Hub, last accessed May 24, 2024, https://www.arch2hub.com/about/why-arch2/.

77 "Ohio Takes the Lead in Hubs Focused on Hydrogen and Sustainable Polymers," JobsOhio, October 24, 2023, https://www.jobsohio.com/news-press/ohio-takes-the-lead-in-hubs-focused-on-hydrogen-and-sustainable-polymers.

78 Battelle, "Appalachian Regional Clean Hydrogen (ARCH2) Selected by the Department of Energy (DOE) to Develop Multi-State Clean Hydrogen Hub," Press Release, April 17, 2024, https://www.battelle.org/insights/newsroom/press-release-details/appalachian-regional-clean-hydrogen-(arch2)-selected-by-the-department-of-energy-(doe)-to-develop-multi-state-clean-hydrogen-hub.

79 "KeyState – Clean Hydrogen and Carbon Storage Project Secures Funding through the Appalachian Regional Clean Hydrogen Hub (ARCH2) $925 Million Federal Grant," Hydrogen Central, November, 1, 2023, https://hydrogen-central.com/keystate-clean-hydrogen-carbon-storage-project-secures-funding-through-appalachian-regional-clean-hydrogen-hub- arch2-925-million-federal-grant/.

80 Batelle, "Appalachian Regional Clean Hydrogen (ARCH2) Selected by the Department of Energy (DOE) to Develop Multi-State Clean Hydrogen Hub."

81 "Why ARCH2."

82 Team PA, "Team PA Summary for Public Release," https://teampa.com/wp-content/uploads/2023/04/DNAH2HubPublicSummary.pdf.

83 Patrick Galey, "Experts sound the alarm on oil sector's blue hydrogen push," Climate Home News. February 15, 2022, https://www.climatechangenews.com/2022/02/15/experts-sound-alarm-oil-sectors-blue-hydrogen-push/.

84 Ole Ketil Helgesen, "Two out of three prestigious projects for CO_2 storage have failed," TU, October 10, 2013, https://www.tu.no/artikler/to-av-tre-prestisjeprosjekter-for-co2-lagring-er-mislykket/234802. This article was translated to English through the Google browser.

85 Ole Ketil Helgesen, "Have to spend two billion kroner to save the Snohvit gas," TU, September 23, 2013. https://www.tu.no/artikler/ma-bruke-to-milliarder-kroner-for-a-redde-snohvit-gassen/235227. This article was translated to English through the Google browser.

86 Equinor, "CCM project at Mongstat stopped," News Statement, September 20, 2013, https://www.equinor.com/news/archive/2013/09/20/20SepMongstad.

a year of operation. Over the course of decades of trial and error, Equinor experienced the economic and technical challenges of dirty hydrogen, and rather than continuing to invest in technology that consistently fails in both arenas, it is moving in a new direction. The question is, why is Team PA, which is co-chaired by the governor, not following suit?

In January 2024, Team PA offered a presentation about the MACH2, ARCH2, and DNA hub projects to the Department of Environmental Protection's (DEP) Citizens Advisory Council (CAC).[87] During that presentation, Thomas Murphy, the Senior Managing Director of Strategic Energy Initiatives for Team PA, echoed what CEO Abby Smith shared with the Senate Democratic Policy Committee in December of 2023, when he said that in spite of two of its major partners pulling out and a lack of federal funding, the organization was moving forward with DNA, continuing its collaboration with Mitsubishi.[88]

Even when operating at its most efficient, dirty hydrogen is not climate friendly. Experts argue that this technology, which proposes to achieve carbon emissions reductions solely through the use of CCS, available right now is only 78% effective at capturing its carbon emissions. Moreover, it takes additional energy input for carbon capture technology to run, which means that "due to the increased amount of fossil gas needed to power the CCS process, blue hydrogen likely had a 20% higher carbon footprint than burning methane alone."[89] This should be said again: dirty hydrogen actually has a higher footprint than if it was never created in the first place.

Noting these environmental impacts of dirty hydrogen is imperative when considering how it could shape the future of residents. Southwestern Pennsylvania is already home to some of the most polluted communities[90] in the nation, thanks to the legacy of steel, plastics, fossil fuel extraction, and refining operations based in the region. Consequently, these communities are skeptical of the economic promises made by hydrogen developers. The primary concern is that CCS would sustain fracking, "which raises both environmental and economic concerns, given that natural gas extraction has thus far failed to provide substantial job creation for the region, and continuation or expansion may not lead to proportional economic growth."[91] The successful completion of the ARCH2 and DNA projects threatens the health and well-being of these communities because it would perpetuate dependence on fracked gas production.

Historically, public-private partnerships like Team PA lack transparency and dovetail with economic tools that have resulted in large amounts of money being funneled into a statewide fossil fuel buildout.

Ultimately, Pennsylvanians—especially the most vulnerable, disaffected, and disenfranchised among us—cannot afford an economic future relying on the cycles of a dirty boom-bust industry. Historically, public-private partnerships like Team PA lack transparency and dovetail with economic tools that have resulted in large amounts of money being funneled into a statewide fossil fuel buildout. Workers and communities need a stable economy, a stable climate, and a healthy environment. Team PA must focus on serving the residents and workers of the Commonwealth, instead of propping up a scheme designed to keep the fracked gas industry afloat and distracting from building a diversified and resilient clean economy.

87 Pennsylvania Department of Environmental Protection Citizens Advisory Council, "Minutes of the Citizens Advisory Council," January 9, 2024, https://files.dep.state.pa.us/PublicParticipation/Citizens%20Advisory%20Council/CACPortalFiles/Meetings/2024_02/Minutes%20of%20CAC%20January%209,%202024%20Meeting.pdf.

88 Team PA, "Hydrogen Hubs: A New Frontier in Energy," January 9, 2024, https://files.dep.state.pa.us/PublicParticipation/Citizens%20Advisory%20Council/CACPortalFiles/Meetings/2024_01/Team%20PA%27s%20Hydrogen%20Presentation%20to%20DEP%20CAC%20-%20Thomas%20Murphy.pdf.

89 Galey, "Experts sound the alarm on oil sector's blue hydrogen push."

90 American Lung Association, "New Report; Pittsburgh's Metro Area's Air Quality Improves to Best Ever for Ozone Moving From 'F' to 'C', Continues to Rank Among Most Polluted in US for Both Short-Term and Year-Round Particle," April 19, 2023. https://www.lung.org/media/press-releases/pittsburgh-sota-2023#:~:text=The%202023%20%E2%80%9CState%20of%20the,year's%20report%20to%20a%20'C'.

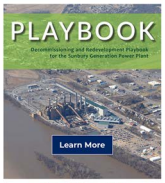
91 Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 65.

DCED's Decommissioning and Redevelopment Playbooks

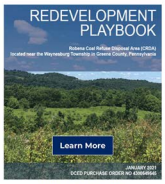
Between 2018 and 2022, the DCED commissioned six Playbooks designed to highlight opportunities to develop decommissioned coal-fired power plants. These Playbooks offer alternative reuses for sites across the state—three in the southwest, two in the southeast, and one in the north central region of the state. The funding for this project funneled through the Appalachian Regional Commission (ARC) and its POWER Initiative—Partnerships for Opportunity and Workforce and Economic Revitalization. This initiative "targets federal resources to help communities and regions that have been affected by job losses in coal mining, coal power plant operations, and coal-related supply chain industries due to the changing economics of America's energy production."[92] Re-employment, job creation, and attracting new private investment to the region are the major priorities.

Mitchell Power Station

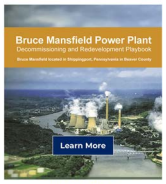
Cromby Generating Station



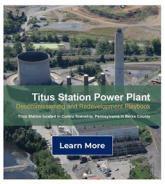
Sunbury Generation Power Plant



Robena Coal Refuse Disposal Area



Bruce Mansfield Power Plant



Titus Station Power Plant

Pennsylvania Department of Community and Economic Development, "Coal-Fired Power Plant Redevelopment Playbooks," https://dced.pa.gov/coal-fired-power-plant-redevelopment-playbooks/

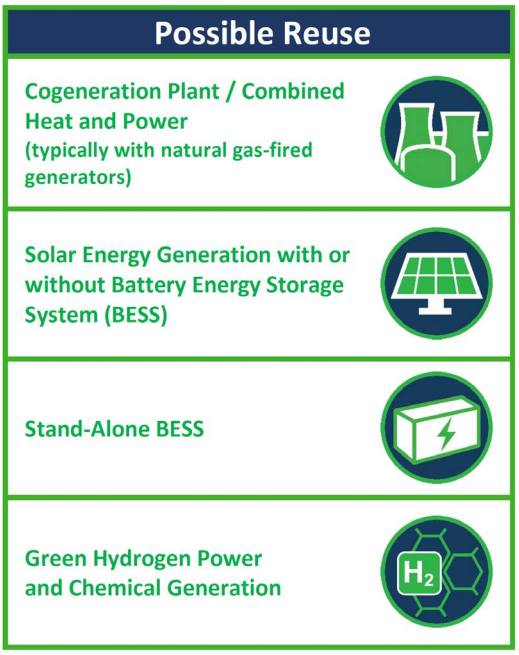
The aim of these Playbooks is to establish models for the redevelopment of coal-fired power plants. Each Playbook presents multiple "alternative" reuses for a site, scores those alternatives, and then offers a description of the "highest and best" reuse. The partners that collaborated on this project supply a great deal of in-depth technical information that typically includes both a site and market analysis, financial and economic impact analyses, as well as recommendations for actions that can be taken in order to move the project forward. Each Playbook contains sections that describe the site, local residential communities, regional workforce skills (Location Quotient), employment data, and information collected during interviews

Playbook	Location	Published	Sold	Alternative 1	Alternative 2	Alternative 3
Mitchell Power Station	Union Twp, Washington County	March 2018		Gas or liquified gas-related manufacturing	Industrial Park	Manufacturing
Cromby Generation Station	East Pikeland Twp/ Phoenixville Borough, Chester County	November 2018		Light Industrial	Septa Rail Station or Rail Car Storage	Executive Office Park or Energy Generation Facility
Sunbury Generation Power Plant	Shamokin Dam Borough/Monroe Twp, Snyder County	March 2019	2020 - medical marijuana grow facility	Energy Generation (gas or solar)	Logistics or Distribution	Energy-Intensive Industry (wood waste recycling/hydroponics, data center)
Robena Coal Refuse Disposal Area	Near Waynesboro Twp, Greene County	January 2021		Industrial or Manufacturing	Commercial or Distribution	Renewable Energy Generation
Bruce Mansfield Power Plant	Shippingport, Beaver County	August 2021	2022	Energy Generation Complex (gas or renewables)	Industrial or Manufacturing tied to gas or petrochemicals	Energy-intensive users (data centers or advanced manufacturing)
Titus Station Power Plant	Cumru Twp, Berks County	June 2022	2021 - plans for chemical recycling	Industrial or Manufacturing	Energy Generation/ Storage (gas or biomass)	N/A

[92] "Partnerships for Opportunity and Workforce and Economic Revitalization Initiative," Appalachian Regional Commission, last accessed May 24, 2024, https://www.arc.gov/grants-and-opportunities/power/.

with stakeholders. The individuals, organizations, and businesses that make up the group of stakeholders varies with each site, but only one Playbook included local residents[93]. The stakeholder groups mostly include industry representatives, County Planning Commissions, and local or regional economic development groups. The Playbook highlights the dominant "theme" of these conversations, taking that feedback into account when recommending a "highest and best" use.

The "Detailed Assessment of Potential Use" section analyzes each proposed reuse strategy, rating it in numerous categories that vary by Playbook. The categories include the number of jobs created, site features, and access to utilities. Once the reuse strategies are rated, the authors offer a narrative explanation and additional observations. While the Playbook notes "disadvantages", like when additional infrastructure needs to be built or relatively few permanent jobs will be created, it omits the environmental disadvantages for the various uses. For instance, the Sunbury Playbook suggests building an additional fracked gas-fired power plant on the site[94] without noting the costs that would be endured by the local community and the climate should another power plant's worth of methane emissions be released into the atmosphere. In other words, the partners that collaborated on the Playbooks do not include the environmental externalities in their decision-making and advisory processes. Nor do the Playbooks ever mention Environmental Justice or Pennsylvania's Climate Action Plan. Those omissions signal that the environmental impacts of these projects are not a deciding factor in the final recommendations and strategies offered.



Pennsylvania Department of Community and Economic Development and TRC, "Bruce Mansfield Power Plant Decommissioning and Redevelopment Playbook," 45.

The Playbooks that focused on southwestern Pennsylvania show deference to the fracked gas and petrochemical industries. Their strategies outline the convenience of proximity to the Shell cracker plant in Beaver County. They also underscore the benefits of creating a downstream market for that

POTENTIAL END USE ASSESSMENT

Potential End Use	Evaluation Criteria					
1 Low Potential / 2 Moderate Potential / 3 Strong Potential	Location/ Market	Site Features	Transportation	Utilities	Labor	Total
Industrial/Manufacturing						
Natural Gas / Natural Gas Liquids Processing	2	3	2	3	3	13
Petrochemical / Plastics Manufacturing	3	3	2	3	3	14
Advanced Manufacturing	2	3	2	3	3	13
Energy Generation						
Natural Gas-Fired Power Generation / Cogeneration / Combined Heat and Power	3	3	3	2	3	14
Battery Energy Storage System	3	3	2	3	3	14
Solar Energy Generation	2	2	2	3	3	13
High Energy Users						
Green Hydrogen Power and Chemical Generation	2	3	2	3	3	13
Data Center	2	3	2	3	2	12
Carbon Capture	2	2	2	2	3	11

Pennsylvania Department of Community and Economic Development and TRC, "Bruce Mansfield Power Plant Decommissioning and Redevelopment Playbook," 43.

93 PA DCED, "Decommissioning & Redevelopment Playbook for the Cromby Generation Station," November 2018, 6.
94 PA DCED, "Decommissioning and Redevelopment Playbook for the Sunbury Generation Power Plant," 41.

plant.[95] This focus on the cracker plant is one example of how the Playbooks have the potential to lock Pennsylvania into an economic monoculture that relies heavily on fossil fuels, rather than promoting the diversification of both the local and statewide economies. Similarly, in the Sunbury Playbook, Pennoni (the consultant) recommended meeting with the Governor's Action Team[96], an intermediary to the DCED, and considering energy intensive opportunities for this site actively marketing the Playbook to attract industry.

Renewable energy generation—in the form of a solar array—was openly considered and included in multiple reuse strategies. The Playbooks stressed that this alternative reuse made the most sense if it was developed in conjunction with tech hubs, green hubs, or incubators. In the Bruce Mansfield Playbook, for example, it was noted that Pennsylvania is "an open market for BESS"[97] (battery energy storage system), but there was no deeper analysis provided on the topic. While the Playbooks nod to renewable energy development, these recommendations are inadequate and ineffectual until the Department invests as much time, money, and capacity courting clean energy and sustainable industry as it does attracting fossil fuels and assisting the petchem industry.

It is time that the DCED recognizes that the situation on the ground has changed, and the energy economy is quickly shifting in the direction of a renewables-based economy, making many of the recommendations in these six existing Playbooks obsolete. Fracked gas companies and their investors understand that their product is no longer economically viable, and the Department's economic strategies should reflect that reality.

Case in point, these Playbooks present an opportunity for the DCED to promote the transition of Pennsylvania's economy from one based on the volatile cycles of fossil fuels and petrochemicals to one based on decarbonization and renewable energy, including solar energy generation, solar panel manufacturing, battery manufacturing, and battery storage. With thoughtful revision and reflection on methodology, these Playbooks could become models for community engagement if residents were included as stakeholders for each site and were able to provide feedback on the projects that informed the DCED, developers, and industry—including the potential to stop a project from moving forward if it will negatively impact the health, safety, and well-being of their community.

In contrast to the current set of Playbooks, PennFuture offers an alternative parallel project creating Playbooks that encourage the decarbonization of our economy:

- Encouraging the diversification of our statewide and local economies;
- Encouraging the development of eco-industrial parks (where appropriate);
- Providing the context of Pennsylvania's Climate Action Plan (including emissions goals) and how each alternative use/reuse supports or hinders emissions goals;
- Promoting solar energy generation, solar panel manufacturing, battery manufacturing, and energy storage;
- Explicit explanations of the environmental and health benefits of renewable energy generation and energy storage in contrast to fossil-fuel generation (where appropriate);
- Explicit explanations of the environmental benefits of attracting industries that support the transition to renewable energy, like battery manufacturing;
- Including a transparent, robust, and accessible community engagement program.

95 PA DCED and TRC, "Bruce Mansfield Power Plant Decommissioning and Redevelopment Playbook," 46 and 61.
96 PA DCED, "Decommissioning and Redevelopment Playbook for the Sunbury Generation Power Plant," 2.
97 PA DCED and TRC, "Bruce Mansfield Power Plant Decommissioning and Redevelopment Playbook," 49.

CASE STUDY

Pennsylvania Is Falling Behind

While Pennsylvania just launched its largest economic development strategy in nearly twenty years, neighboring states have been steadily reevaluating and diversifying their economies. Fellow fossil fuel strongholds, like Ohio, recognize that the transition to renewable energy is well on its way, and they are actively making moves to ensure that their residents, workforces, and economies are not left behind.

With the assistance of economic development agencies and organizations these states are already leveraging federal investments and shifting state-based financial infrastructure to create an economic ecosystem to facilitate the transition to a decarbonized economy. Their combined investments are aimed at long-term economic stability with the benefit of reshaping the regional economy, creating a new "battery belt" much like what is occurring in the Midwest.[98]

In another neighboring state and fellow fossil fuel powerhouse, West Virginia, the Massachusetts-based battery manufacturer Form Energy decided to build a new battery plant just five miles from the Pennsylvania border in Weirton, West Virginia. After considering 87 sites, including some in Pennsylvania, Form Energy accepted a financing deal that included a $290 million investment by the state (pulled from the state's $1.1 billion surplus), agreeing to match it with $350 million of its own capital. This is the second largest investment in West Virginia in 2023. Not only will this project create 750 jobs that reportedly pay an average of $63,000 with benefits, it will also breathe new life into a site that was once the fifth largest steel producer in the world. The local economy collapsed after it shuttered in the 1970s, a story that parallels the experience of workers across Pennsylvania. This plant's core product will be a non-toxic, iron air battery "capable of storing days of energy" and is seen as a viable alternative to traditional batteries that require rare earth minerals.[99] It is worth noting that the Department of Energy (DOE) found that West Virginia added 7,000 jobs in 2022, which is a 19% increase for the state.[100] This momentum shows no sign of stopping.

Energy storage is crucial for grid optimization, and battery-based systems are adaptable to various needs and can be employed in different configurations. Importantly, they can be paired with renewable energy generation to reduce negative environmental impacts created over the life cycle of electric vehicles, and they can also stand alone, increasing capacity during peak electric usage, reducing the need to add new or upgrade existing transmission lines. It is worth noting that the expansion of wind and solar into the grid will increase the amount of energy flowing through it, thus creating a need for batteries to expand grid-scale storage.[101]

Taken in its entirety, the life cycle of the renewable energy market is a boon for economic revitalization. There is economic opportunity across all sectors—construction, electrification, energy generation, energy storage, battery manufacturing, and battery recycling. Industry recognizes this, and momentum is growing "as industrial heavy weights build multi-billion-dollar EV batteries and car assembling plants". As companies expand their investments in various sectors that support decarbonization, workers—specifically Pennsylvania workers—stand to benefit, but only if the Commonwealth intentionally and proactively reforms its focus and the way it currently does business.[102]

[98] Julian Spector, "The South is building the most vibrant EV and battery hub in the US," Canary Media, June 8, 2023, https://www.canarymedia.com/articles/clean-energy-manufacturing/the-south-is-building-the-most-vibrant-ev-and-battery-hub-in-the-us.

[99] Neena Hagan, "A Sense of Hope," The Pittsburgh Post-Gazette, May 4, 2023, https://www.post-gazette.com/business/powersource/2023/05/04/form-energy-weirton-battery-steel-manufacturing-massachusetts-osha/stories/202305040025.

[100] United States Department of Energy, "DOE Report Finds Clean Energy Jobs Grew in Every State in 2022," Press Release, June 28, 2023, https://www.energy.gov/articles/doe-report-finds-clean-energy-jobs-grew-every-state-2022.

[101] PA DEP, "Pennsylvania Climate Action Plan 2021," September 2021, 99-100, http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=3925177&DocName=2021%20PENNSYLVANIA%20CLIMATE%20ACTION%20PLAN.PDF%20%20%3cspan%20style%3D%22color:green%3b%22%3e%3c/span%3e%20%3cspan%20style%3D%22color:blue%3b%22%3e%28NEW%29%3c/span%3e%209/21/2023. .

[102] Maria Gallucci, "This EV Battery Recycling Plant in Ohio is planning a huge expansion," Canary Media, February 22, 2023, https://www.canarymedia.com/articles/batteries/this-ev-battery-recycling-plant-in-ohio-is-planning-a-huge-expansion.

CASE STUDY

Ohio

Case in point, Ohio is making moves to revitalize its economy, and while it has taken time, the state has achieved notable success. In 2010, Ohio was ranked 49th for job growth rate across 10 sectors, and in just over a decade, has moved up to 20th in 2022.[103] This progress can be credited in-part to JobsOhio, which is the state's government-authorized nonprofit, similar to Team PA, and is "designed to drive job creation and new capital investments in Ohio through business attraction, retention, and expansion."[104] It has financing tools that are more akin to DCED, and its organizational structure is more robust, broken down intoteams that leverage business acumen: research, business development, sites and infrastructure, talent, project performance, government affairs, strategic communications, and even industry experts.[105] With more than a decade of experience behind it, JobsOhio is raising the state's profile in growth industries like semiconductors, electric vehicle battery manufacturing, and the life sciences sector.

While not everything about Ohio's economic progress is clean and green (JobsOhio continues to leverage fracked gas and pipeline infrastructure), the state is experiencing advancements within the electric vehicle sector. For example, LG Energy Solution and Honda are building an EV battery manufacturing facility in Jeffersonville, whose construction is expected to be completed by the end of 2024. Private investment could total over $4.4 billion and jobs created could number over 2,000. Honda will also invest another $700 million into existing plants in the state to retrofit them for electric vehicle and component manufacturing.[106] There are multiple stories like this, albeit some on a smaller scale—Capchem, which is set to build the largest battery storage facility in the nation in California is also building a battery manufacturing plant in Lawrence County, [107] Ohio, and the electric vehicle battery manufacturer Mobis North America is planned to open a facility in Toledo in August 2024.[108]

As car manufacturers increase investments in battery manufacturing, other companies are considering how to leverage the end of the battery's life cycle to establish new markets and create new job opportunities. In Ohio, Cirba Solutions is expanding its lithium-ion recycling operations in order to meet increased demand for materials needed to manufacture these batteries. The company received $82 million in grants through the Bipartisan Infrastructure Law to upgrade their Lancaster, OH location. Totalling $200 million, this expansion project will "create 150 local jobs and be fully operational in late 2024 or early 2025."[109]

Ohio continues to demonstrate what is possible when a state devotes resources to decarbonizing its economy. In March, Ohio announced that construction for a massive agrivoltaic project called Oak Run will begin in 2025. This will be the largest solar project in the state and one of the largest in the nation. Developed by Savio, which is a subsidiary of Shell, Oak Run will be developed on 6,000 acres and includes both solar panels and battery storage, as well as 2,000 acres for grazing and farming. Labor unions and the Ohio Chamber of Commerce both support the project, touting jobs, revenue, and clean power. The business manager and financial secretary of IBEW 683, Patrick Hook, shared that members of the union value other benefits of this project, like the opportunity to work close to home, which would allow them to spend more time with their families at the end of their work day. Ohio's presence in the clean economy is growing at a pace that is gaining national recognition. The Solar Energy Industries Association considers the state a "dark horse" that is gaining on Texas, California, and Florida in the sector. It now ranks fifth in solar installations for 2023, and shows no sign of slowing down.[110]

[103] McKinsey & Company, "JobsOhio and the long-term innovative revitalization of a state's economy," last accessed May 24, 2024, October 6, 2022, https://www.mckinsey.com/about-us/new-at-mckinsey-blog/jobsohio-revitalizes-states-economy-through-innovative-solutions.

[104] "Ohio Soars to No. 5 in Area Development's Top States for Doing Business Rankings," Global Newswire September 14, 2023, https://www.globenewswire.com/en/news-release/2023/09/14/2743529/0/en/Ohio-Soars-to-No-5-in-Area-Development-s-Top-States-for-Doing-Business-Rankings.html.

[105] "Meet the Teams," JobsOhio, last accessed May 24, 2024, https://www.jobsohio.com/about-us/meet-our-teams.

[106] Mark Williams, "Honda, LG ramp up hiring as Fayette County electric vehicle battery plant hits milestone."

[107] Ariana Mintz, "Battery manufacturing plant coming to Ohio," WSAZ News Channel 3, June 20, 2023. https://www.wsaz.com/2023/06/20/battery-manufacturing-plant-coming-ohio/.

[108] Tony Gingerich, "Electric vehicle battery assembly plant coming to Toledo," WTOL11, December 11, 2023, https://www.wtol.com/article/news/local/mobis-electric-vehicle-battery-plant-coming-to-toledo/512-92d7ed5b-6727-42ad-bd87-34b3ea75a254.

[109] Gallucci, "This EV Battery Recycling Plant in Ohio is planning a huge expansion."

[110] Eric Wesoff, "Ohio greenlights massive solar, storage and argivoltaics project," Canary Media, March 21, 2024, https://www.canarymedia.com/articles/solar/ohio-greenlights-massive-solar-storage-and-agrivoltaics-project.

DCED: The Key to PA Getting It Done *Right*

Industrial Decarbonization: The Nexus of Job Creation And Environmental Policy

Since the inception of the industrial revolution that built the modern U.S. economy, Pennsylvania's high-growth and high-value sectors have been centered within heavy industry, which primarily rely on dirty, extractive fossil fuels to drive them. But as the region, nation, and the world decarbonize and fossil fuel markets continue to decline, dependence on fracked gas and coal will become obsolete. Pennsylvania will lose its competitive advantage if it does not rapidly adjust to these changes in market forces.

Decarbonization – the reduction of our reliance on fossil fuels – and energy efficiency go hand-in-hand. Typically, decarbonization relies upon electrification, and the reduction in use and need for energy more generally can ease the transition away from fossil fuels by alleviating some additional strain caused by the increased need for clean electricity. Making processes, buildings, and machinery more energy efficient reduces the total amount of energy used.

Consequently, energy efficiency, often referred to as the "first fuel" for decarbonization, "is one of the easiest and most cost-effective methods to reduce emissions. Energy efficiency solutions have been implemented across multiple sectors for decades, making this one of the most technologically mature and 'shovel-ready' decarbonization levers in the industrial sector."[111] Importantly, this sector scales-up, making it applicable across many industrial subsectors, and therefore it is the largest and fastest-growing sector in the Commonwealth's clean energy economy,[112] making it ripe for prioritization by DCED.

[111] Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 16.
[112] Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 67.

The combination of decarbonization and energy efficiency also saves industry operators money in the long haul, which could translate to financial benefits for manufacturers and environmental benefits for communities. In Pennsylvania, the manufacturing sector is massive in scale: contributing $113 billion in state domestic product and providing 11% of the Commonwealth's jobs. Consequently, it is also the single largest greenhouse gas emitting sector, causing one-third of Pennsylvania's greenhouse gas emissions.[113] While emissions in manufacturing are primarily produced by burning fossil fuels and industrial processes, about 22% are from the sector's use of electricity.[114] Reducing inefficiency and decarbonizing electricity generation could lead to cost savings for industry and increase their economic competitiveness, as well as decrease emissions.

Pennsylvania trade workers, small businesses, and contractors are especially well-positioned to win in this arena. "Energy efficiency investments yield greater local economic returns than fossil fuel extraction or power generation, both due to more jobs being created and higher wages in those jobs."[115] Specifically, "the jobs multiplier calculated for energy efficiency is 59% higher than the multiplier for oil and gas extraction"[116], and it is "122% higher than the multiplier for coal mining"[117]. Energy efficiency is in high demand[118], and the dollars invested in the energy efficiency industry stay within the local community, region, and the state because the work is done by small businesses and local workers. This then creates conditions for economic growth potential, resulting in more jobs, higher wages, and the greater likelihood that workers will be able to work where they live – a potential and important benefit of these investments.

It is important to acknowledge the potential for destabilization of the workforce during the transition to clean energy. However, if the state is proactive and intentional about its efforts, the combination of decarbonization and energy efficiency can alleviate some impacts on workers. Indeed, according to the DOE, Pennsylvania's "clean energy economy growth outpaced the overall economic growth and energy employment growth statewide, nationwide clean energy economic growth, and neighboring clean energy labor markets."[119] The clean energy economy in the Commonwealth grew by 5.1%–or 4,613 jobs–between Q4 2020 and Q4 2021.[120] Full-Time Equivalent jobs also increased by 5.1%–or 3,200 jobs.[121] In this way, decarbonization can swiftly become the economic engine of regional economies and, with the appropriate reskilling and upskilling training, a pathway forward for workers.

How to Invest in the Health and Wealth of PA Communities

In the face of the national transition to renewable energy and decarbonization, the state of Pennsylvania must coordinate the deployment of available economic resources to proactively transform and stabilize its economy to keep pace. This economic mobilization will regenerate and revitalize the state of play for the Commonwealth by financing affordable solutions, supporting workers, and diversifying local economies. Decarbonizing the industrial sector can bolster local economies by shifting

[113] Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 4.
[114] Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 5.
[115] Goodenbery, Animas, Cilento, Gorman, Hebel, and Walderman, "A Roadmap for Industrial Decarbonization in Pennsylvania," 68.
[116] Strategen (prepared for ORVI), "A Clean Energy Pathway for Southwestern Pennsylvania," December 2022, 34, https://ohiorivervalleyinstitute.org/wp-content/uploads/2022/12/A-Clean-Energy-Pathway-for-Southwestern-Pennsylvania.pdf.
[117] Strategen/ORVI, "A Clean Energy Pathway for Southwestern Pennsylvania," 4.
[118] BW Research Partnership (prepared for PA DEP), "2023 Pennsylvania Energy Efficiency Workforce Needs," 2, https://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/2023_Energy_Report/PA%20EE%20Workforce%20Needs%20Report%20Final.pdf.
[119] BW Research Partnership (prepared for PA DEP Energy Programs Office), "2022 Pennsylvania Clean Energy Employment Report," 1, https://files.dep.state.pa.us/Energy/Office%20of%20Energy%20and%20Technology/OETDPortalFiles/2022_Energy_Report/2022_PA_CEER_3.4vw.pdf.
[120] BW Research Partnership/PA DEP, "2022 Pennsylvania Clean Energy Employment Report," 1.
[121] BW Research Partnership/PA DEP, "2022 Pennsylvania Clean Energy Employment Report," 1.

Economic security and a high quality of life for all Pennsylvanians is achievable, but only if the state works to anticipate and address potential disruptions caused by the transition away from fossil fuels.

financial resources away from fossil fuels to instead prioritize high-growth sectors like clean energy development and deployment, material recycling, retrofitting aging industrial buildings, and energy efficiency. What is needed now is bold leadership that can manage the challenge instead of shy away from it, so that the state's economy is prepared for the future that lies ahead. This is where DCED comes in.

Extractive industries have played an outsized role in Pennsylvania's history, culture, and economy, and generations of families have relied upon them for economic survival. Economic security and a high quality of life for all Pennsylvanians is achievable, but only if the state works to anticipate and address potential disruptions caused by the transition away from fossil fuels. As the former director of Sierra Club's Beyond Coal campaign acknowledged:

> "As a West Virginian, I know that this transition won't be easy for everyone, and I don't want to sugarcoat the challenge we face in diversifying the economies of regions that have long depended on fossil fuels. But we're beginning to see glimmers of what's possible, and decarbonizing our economy has the potential to put millions of Americans to work."[122]

The key to a successful transition lies with Pennsylvania's DCED. As set forth in the following policy recommendations, proactively reforming the Department can result in prosperity and economic security for Pennsylvanians across the state. The task is neither simple nor small, but the tools and opportunities exist.

Because of its existing partnerships with entities like Team PA, Pennsylvania Energy Horizons, and the Governor's Action Team, the DCED is strategically positioned to influence major players in industry, organized labor, and energy development. Additionally, by strengthening connections with fellow state agencies, like the DEP, the DCED can establish well-informed parameters to its funding tools that prioritize projects that reduce emissions, limit pollution, and support the health of labor and local communities, especially frontline communities. DCED programs and tools are well-positioned to direct Pennsylvania toward more clean projects and efficient practices.

Economic development policy *is* environmental policy. What, how, and where we develop impacts local landscapes and environmental resources and influences both the health and wealth of communities. Consequently, as the primary driver of economic development for the Commonwealth, the DCED's focus and investments substantially influence the current and future quality of life for all Pennsylvanians. With creative vision and bold leadership, combining economic and environmental interests can create a win-win for communities, workers, and future generations. The DCED must lead Pennsylvania towards a cleaner, greener future, but the climate and our communities cannot wait; we need both a stable economy and a healthy environment now.

[122] Mary Anne Hitt, "Beyond Coal," in *All We Can Save: Truth, Courage, and Solutions for the Climate Crisis*," ed. Ayana Elizabeth Johnson and Katharine K. Wilkinson (New York: One World, 2020), 71-72.

Policy Recommendations to Reform the Department of Community and Economic Development and Institutional Collaborations

Pennsylvania is well-positioned to simultaneously re-energize its economy, address the climate crisis, and lead the clean industrial revolution. However, the Commonwealth is already falling behind as industrial states like West Virginia and Ohio invest more and more in clean energy manufacturing while Pennsylvania continues to focus on extractive industries. Even though climate policy has traditionally been the province of environmental agencies, the role of the Department of Community and Economic Development has become more critical as the world transitions to a new energy economy, since it drives investments designed to last decades. To truly take advantage of the agency's strengths, DCED must be reformed and redirected toward industries that support the jobs of the future, sustainable communities, and public health. To that end, PennFuture's policy recommendations have two main goals:

- Refocus and leverage the DCED's private sector influence and funding capabilities to facilitate Pennsylvania's transition to a sustainable, equitable economy, via an aggressive sector-based climate strategy, that offers prosperity for all.
- Reshape Pennsylvania's strategic collaborations with public and private partners in order to successfully shift the foundation of the state's economy towards clean, renewable sources of energy.

Using that basic framework, the following is a summary of the proposed reforms to capitalize off the clean industrial revolution, draw down federal climate resources, attract and retain workforce talent, and diversify Pennsylvania's economy.

REFORMING THE DCED

Establish Climate Accountability Measures within the Department's funding structure for program priorities. These new measures would institute green building and energy efficiency standards for large new projects, encourage the deployment of on-site renewables, and track the carbon impacts of projects. The DCED should explicitly include the reduction of greenhouse gas emissions and the pursuit of a sustainable economy as one of the Department's policy priorities. In addition, DCED should adopt climate goals as part of its financing strategies.

Reform the Department's tracking, reporting, and public disclosure of both data and deliverables to support greater transparency. Require grantees to adopt carbon footprinting measures while providing them with the tools they would need to do so. Increase and modernize the tracking and reporting of quantitative data, highlighting projects that reduce carbon emissions, invest in environmental justice communities, and expand the geographic reach of the Pennsylvania Innovation Economy program. Facilitate a connection between the DEP and the Pennsylvania Regional Challenge to ensure that the Environmental Justice Areas Viewer is appropriately applied. Publish annual financial reports with the expressed aim of reducing tax credits, grants, and loan programs that fund fossil fuel and petrochemical projects. Better leverage the Marketing to Attract Business program by instituting the tracking of new projects that support a diversified economy and the transition to renewables.

Team PA can take the first step in reshaping the state's economy by identifying five to ten key sustainable industries to invest in.

The DCED must increase its responsiveness to communities in order for all Pennsylvanians to prosper from the transition to a sustainable economy. Leverage OEJ expertise and capacity to share information with and solicit feedback from under-resourced communities. Ensure there is opportunity for community feedback to impact development projects as needed. Incorporate environmental justice goals into DCED grant and loan programs and policy priorities.

Reform the Department's "Energy" Program to align with the transition to a diversified and sustainable economy. Shift the explicit focus of this program away from attracting "energy intensive industries" to that of facilitating the transition to a diversified economy where Pennsylvania becomes a hub for manufacturing the components needed to develop the clean energy economy. Update, revise, and create tools that clearly outline all of the financial resources and incentives available for the development of projects that support an energy efficiency and renewable energy-based economy; map out the prime land for the deployment of solar, wind, and the manufacturing of renewable technology; and expressly communicate the positive impact of industrial development that prioritizes the economic, environmental, and health benefits of all Pennsylvanians.

REFORMING INSTITUTIONAL COLLABORATIONS

Re-establish Team PA as a champion for Pennsylvania's transition to a sustainable economy based on renewable energy, decarbonization and energy efficiency, and diversification. In order to increase effectiveness and refocus on diversification, Team PA's board size should decrease and be limited to economic development professionals, organized labor, racial justice leaders, and environmental groups. Board members should not be companies actively seeking to receive DCED resources. Team PA's structure must evolve to leverage specialization and expertise, creating multiple working groups with expressed focus on talent, project performance, strategic communications, research, and more. Pennsylvania's economy would stabilize and attract and retain talent through its diversification. Team PA can take the first step in reshaping the state's economy by identifying five to ten key sustainable industries to invest in. From there, Team PA can establish several innovation hubs, building off of current success in Philadelphia and Pittsburgh, and invest in talent recruitment, retainment, upskilling, and re-skilling.

Create an interagency Clean Energy Working Group to develop a comprehensive plan regarding strategic deployment of decarbonization and renewable energy resources and infrastructure in the Commonwealth of Pennsylvania. Explicitly communicate that the reduction of greenhouse gas emissions and the pursuit of a sustainable economy are the priorities of this Working Group. Align the Clean Energy Working Group plan with DEP's Climate Action Plan. Develop a communication flow with the DCED and Team PA in order to implement a statewide sustainable economic strategy that can effectively leverage public-private funding, scale and commercialize innovative technologies like power storage and batteries, and build capacity.

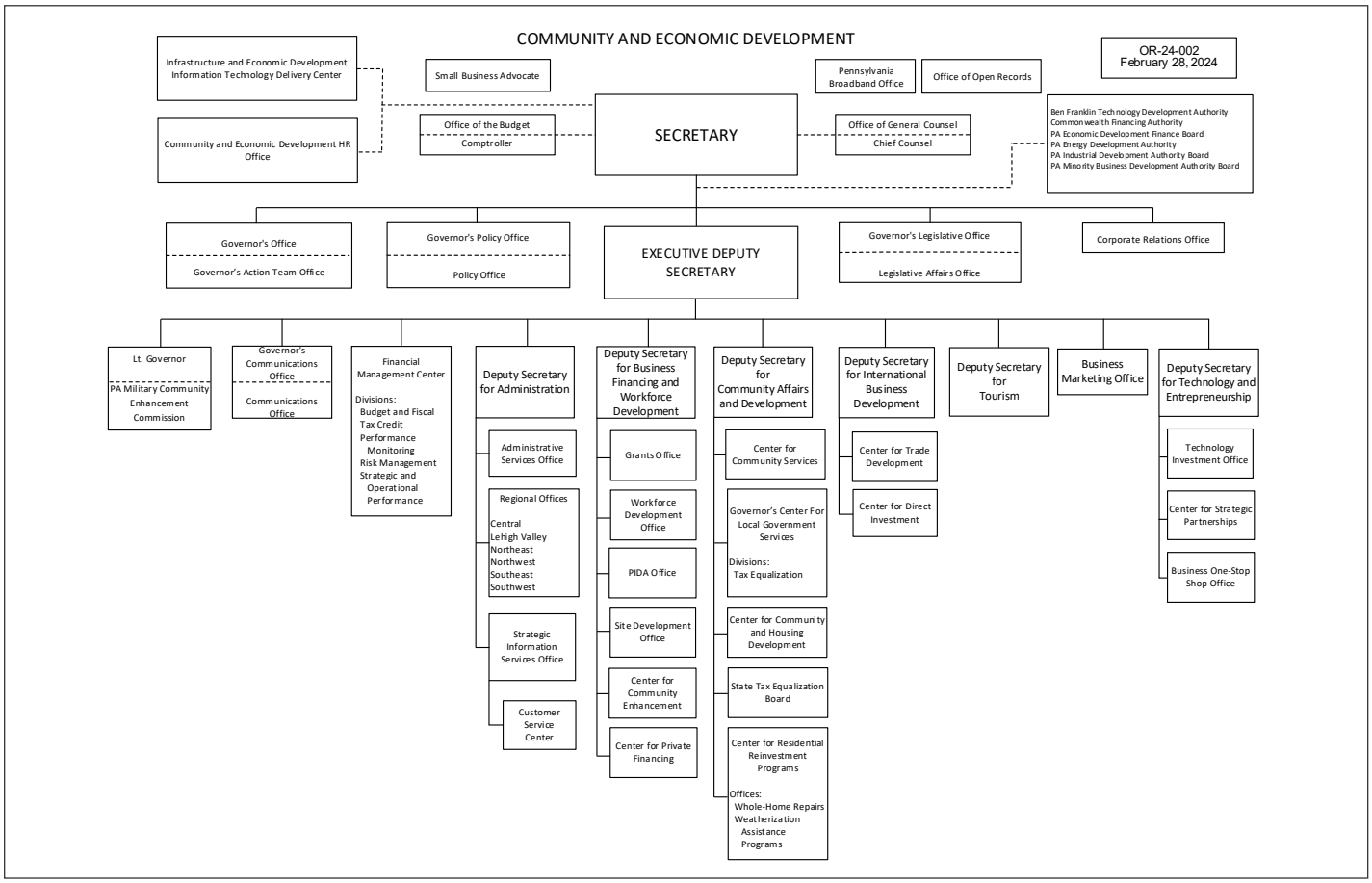
APPENDIX

How does the DCED work?

The DCED's structure is straightforward. It contains an Executive Staff, which is responsible for maintaining relationships with and coordinating communications between various intragovernmental agencies, private investors, businesses, and additional stakeholders, like labor and municipal officials. Each member of the Executive Staff oversees various offices and commissions that directly connect to its established policy priorities and corresponding programs.[123]

The Governor is responsible for appointing the Secretary of the DCED (subject to Senate approval), who oversees relationships with the Governor's Action Team and DCED's Policy Office and Legislative Affairs Office. The Secretary also sits on the board of directors of many government authorities that are responsible for the distribution of funds. These entities include, but are not limited to: the Ben Franklin Technology Development Authority (BFTDA), the Commonwealth Financing Authority (CFA), the Pennsylvania Industrial Development Authority (PIDA), and the Pennsylvania Energy Development Authority (PEDA).[124]

The DCED publishes an annual Legislative Budget Presentation[125], which outlines its policy priorities, corresponding programs, and requisite spending for the coming fiscal year. During the annual budget



Commonwealth of Pennsylvania, "Executive Board Resolution No. OR-24-002," February 28, 2024, 4. https://www.oa.pa.gov/Policies/Documents/Community%20and%20Economic%20Development.pdf

[123] "Executive Staff," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/about-us/executive-staff/.
[124] PA DCED, "Legislative Budget Presentation FY2024-25."
[125] PA DCED, "Legislative Budget Presentation FY2024-25."

process, the Secretary of the DCED appears in the necessary appropriations hearings to promote the department's budget set by the Governor and to respond to questions and suggestions offered by state legislators.

Program Priorities and Individual Initiatives

The DCED has a large menu of programs and initiatives that it uses to redistribute public and private funds in order to finance development projects across the state. The list of programs is lengthy, and consequently, we offer a snapshot of the priorities and initiatives that are most relevant to the topic of sustainable economics.

Job Creation, Site Development, Workforce Training, Business Growth and Attraction

Pennsylvania First—This program provides grants aimed at job creation and retention, infrastructure projects, and workforce development to improve Pennsylvania's competitiveness with other states. PA First offers funding that can be used for job training; land and building acquisition and construction, purchase and upgrade of machinery and equipment, construction and rehabilitation of infrastructure, working capital, and environmental assessment and remediation.[126]

WEDnetPA—*incumbent worker training program and provides funding to Pennsylvania companies for essential skills and advanced training. This is a job training alliance of numerous partners who seek the input of organizations to determine target industries and training priorities in their regions.*[127]

PA SITES—*initiative to develop competitive, shovel-ready sites for businesses to relocate or expand; focused on priority industries.128 The program will establish certified site criteria. 129 The Pennsylvania Economic Development Financing Authority (PEDFA) issues these bonds.*[130]

Pennsylvania Industrial Development Authority (PIDA)—provides low-interest loans and lines of credit for a wide range of Commonwealth businesses including manufacturing, industrial, health care, agricultural, research and development, hospitality, defense conversion, information technology, construction, day care, retail and service enterprises, as well as for the development of industrial parks and multi-tenant facilities. Eligible costs include real estate acquisitions, construction and renovation projects, machinery and equipment acquisitions, and working capital costs. The interest savings realized through PIDA's program enables the recipient companies to invest the savings back into the business and its workforce to remain competitive.

Pennsylvania Innovation Economy

Manufacturing PA—designed to support Pennsylvania's manufacturing community, with an emphasis on small to medium-sized manufacturers. Manufacturing PA supports Pennsylvania's manufacturing community through the department's strategic partners including Industrial Resource Centers, Pennsylvania's colleges, universities, technical schools, and nonprofit organizations that provide critical training and workforce development opportunities. Manufacturing PA also promotes innovative problem solving by matching higher education with the business community.[132]

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126 PA Office of the Governor, "Executive Budget FY24-25," E11-9.
127 PA Office of the Governor, "Executive Budget FY24-25," E11-9.
128 PA Office of the Governor, "Executive Budget FY24-25," A1-7.
129 PA Office of the Governor, "Executive Budget FY24-25," H-87.
130 PA Office of the Governor, "Executive Budget FY24-25," G-9.
131 PA Office of the Governor, "Executive Budget FY24-25," E11-9.
132 PA Office of the Governor, "Executive Budget FY24-25," E11-12.

Energy—develop home grown energy resources and attract energy intensive industries to the state, attracting investments that enhance Pennsylvania's manufacturing base by utilizing energy assets. Utilizing Pennsylvania Energy Horizons, a statewide public-private network, to obtain feedback from stakeholders allows the department to refine where Pennsylvania should focus its energy efforts and support the state's interest in redeveloping decommissioned coal-fired power plants.[133]

Pennsylvania Worldwide[134]

Office of International Business Development (OIBD)—maintains a network of authorized trade and investment representatives around the world. With this network and regional partners across Pennsylvania, the office pursues three goals. First, OIBD works to help Pennsylvania companies to export to new markets by providing customized assistance to ensure companies are ready to export, and then providing in-market research, vetted business connections, and other assistance to facilitate their business. Second, OIBD works to promote Pennsylvania as a place to do business by informing international audiences of Pennsylvania's strengths and serving as a business concierge helping international companies to conduct site searches, research business opportunities, and ultimately establish a presence and grow in Pennsylvania. Third, OIBD works to connect Pennsylvania companies, universities, cultural institutions, and communities to global partners for mutually beneficial information exchanges and business opportunities.[135]

PA Assets

Marketing to Attract Business—encourages business decision makers to locate or stay in the state by promoting the competitive advantages of doing business in Pennsylvania. The office also promotes DCED's many programs for technical assistance, financial support, and workforce training resources for businesses. The Marketing to Attract Business program provides necessary funding to support the office's business marketing initiatives. This includes the PA Gets It Done microsite and content, DCED and Business One-Stop Shop websites, proactive media relations, DCED's social media channels (including LinkedIn, Twitter, and Facebook), paid advertising, and targeted events. The office collaborates with local and regional economic development organizations, community partners, and workforce development professionals to maximize the reach of collective marketing efforts.[136]

Tax Credits - Administered in conjunction with the Department of Revenue

Keystone Opportunity Zone—Through credits, waivers and broad-based tax abatements, total taxes on economic activity in zones are significantly reduced. These benefits affect the following taxes: State, Corporate Net Income tax, Personal Income tax, Sales and Use tax (purchases consumed and used by the qualified business in the zone), Mutual Thrift Institution tax, Bank and Trust Company Shares tax Local, Earned Income/Net Profits tax, Business Gross Receipts, Business Occupancy, Business Privilege and Mercantile tax, Sales and Use tax (county/city; purchases exclusively used and consumed by the qualified business in the zone), Property tax.[137] Many KOZs utilize funds from the Industrial Sites Cleanup Fund (ISCF).[138] "Pennsylvania businesses relocating to a KOZ/KOEZ must either: Increase their full-time employment by 20% within the first full year of operation, or make a 10% capital investment in the KOZ/KOEZ property based on their prior year's gross revenues. Eligibility for benefits is based upon annual certification."[139]

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[133] PA Office of the Governor, "Executive Budget FY24-25," E11-9.
[134] PA Office of the Governor, "Executive Budget FY24-25," E11-14.
[135] PA Office of the Governor, "Executive Budget FY24-25," E11-14.
[136] PA Office of the Governor, "Executive Budget FY24-25," E11-15.
[137] Messenger, Hipple, and Keller, "Pennsylvania's Bad Bet: Why Shell Didn't Save Appalachia with Plastics," 12.
[138] PA DCED, "Legislative Budget Presentation FY2024-25," 32.
[139] "Keystone Opportunity Zones (KOZs)," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/programs/keystone-opportunity-zones-kozs/.

Keystone Opportunity Expansion Zone—*began in 2000 and is based on the same principals, criteria, and guidelines as the KOZ. SB 1412 authorized the creation of KOEZs in 2008. "Zone expansions must be contiguous to existing zones and not exceed 15 acres. Time extensions may be for seven years or ten, dependent on the local government's preference. Only unoccupied property may receive a time extension."*[140] *The legislation also authorized 15 additional KOEZs; the new zones cannot exceed 350 acres. SB 1237 passed in 2012 and allowed for 15 new designations.*[141]

Keystone Innovation Zone Tax Credit Program—*an "incentive program that provides tax credits to for-profit companies less than eight years old operating within specific targeted industries within the boundaries of a Keystone Innovation Zone (KIZ)*[142]. *Total funding available to KIZ companies is $15 million in tax credits annually.*[143]

Keystone Innovation Zone (KIZ)—designed in 2004 to address the lack of entrepreneurial activity in proximity to research and development "clusters" and were configured around higher education institutions[144]. Every individual KIZ focuses on its region's target industries.[145]

Keystone Special Development Zone (KSDZ)—provides incentives to for-profit businesses to locate and operate in designated geographic zones and revitalize the numerous "abandoned, deteriorated commercial and industrial sites"[146] in Pennsylvania. The KSDZ offers a "$2,100 per-job tax credit to approved businesses operating within a Keystone Special Development Zone."[147]

Coal Refuse Energy and Reclamation Tax Credit—provides tax credits to eligible facilities which generate electricity by using coal refuse for power generation, control acid gasses for emission control, and use ash produced by the facilities to reclaim mining-affected sites.[148] "Tax credit awards shall be equal to $4 multiplied by the tons of qualified coal refuse used to generate electricity at an eligible facility in the previous calendar year. No more than 22.2% of the total amount of tax credits issued shall be awarded to a single facility in any fiscal year."[149] No more than $20,000,000 in tax credits can be awarded per fiscal year.[150]

Other

Governor's Action Team

The Governor's Action Team (GAT) is a group of economic development professionals that assists businesses interested in establishing new operations in Pennsylvania or businesses already established in the state that are interested in expansion. Headquartered in Harrisburg, the GAT has regional offices across the state, including Philadelphia, Pittsburgh, Lewisburg, Scranton, Erie, and Bethlehem.

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140 PA DCED, "Legislative Budget Presentation FY2024-25," 92.

141 PA DCED, "Legislative Budget Presentation FY2024-25," 92.

142 "Keystone Innovation Zones Coordinator Locations," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/business-assistance/kiz-coordinator-locations/.

143 "Keystone Innovation Zone Tax Credit Program," PA DCED, last accessed May 24, 2024,https://dced.pa.gov/programs/keystone-innovation-zone-tax-credit-program/.

144 "Keystone Innovation Zones Coordinator Locations."

145 "Keystone Innovation Zones Coordinator Locations."

146 "Keystone Special Development Zone (KSDZ)," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/programs/keystone-special-development-zone-ksdz/.

147 "Keystone Special Development Zone (KSDZ)."

148 "Coal Refuse Energy and Reclamation Tax Credit," PA DCED, last accessed May 24, 2024, https://dced.pa.gov/programs/coal-refuse-energy-reclamation-tax-credit/.

149 "Coal Refuse Energy and Reclamation Tax Credit."

150 "Coal Refuse Energy and Reclamation Tax Credit."

Reporting directly to the Governor, the GAT serves as the point of contact for businesses interested in accessing the Department's funding initiatives and programs. It customizes a funding package for each individual business and its specific project. This assistance package can include grants, loans, tax credits, and technical assistance offered by the Department's suite of programs and initiatives.

The GAT reviews each proposed project, using the following criteria to make determinations:

- Overall economic impact of the project
- Company's financial condition
- Validity of the company's business model
- Strength of commitments for private financing for the project
- Competitive posture of the project

It offers site selection services, such as identifying sites and buildings; provides information about local workforce, infrastructure, Pennsylvania tax structure and incentives; hosts site tours; and connects businesses with local economic development groups and elected officials. The GAT coordinates interactions between businesses and state agencies during project development and assists in expediting the associated permitting and approval processes.[151]

[151] Pennsylvania Governor's Action Team, "GAT One-Page Description," May 2015 (copy on file with PennFuture).

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