



WEST VIRGINIA
**POLYMER
ALLIANCE ZONE**
ENERGY. PROXIMITY. SUCCESS.

“PAZ is an ideal location for polymer manufacturers providing access to low cost natural resources, proximity to over 70% of our customer base and an experienced workforce with the country’s lowest manufacturing turnover rate.”

— John Kovaleski, Plant Manager
Dupont, Washington Works

A World-Class Opportunity for Polymer Manufacturers

The Polymer Alliance Zone (PAZ) of West Virginia was created in 1996 as a pilot project of the State of West Virginia through an executive order of the Governor. Today, PAZ has one of the highest concentrations of high-technology, specialty and engineering polymers production in the United States.

The Polymer Alliance Zone is home to many global companies who have been calling the region home for many years while benefiting from the opportunities found here. Companies such as DuPont, Chemours, Braskem, Ashland, Linde, APG Polymers, Star Plastics, and Solvay all operate in the Mid-Ohio River Valley as well as many other recognized polymer companies.

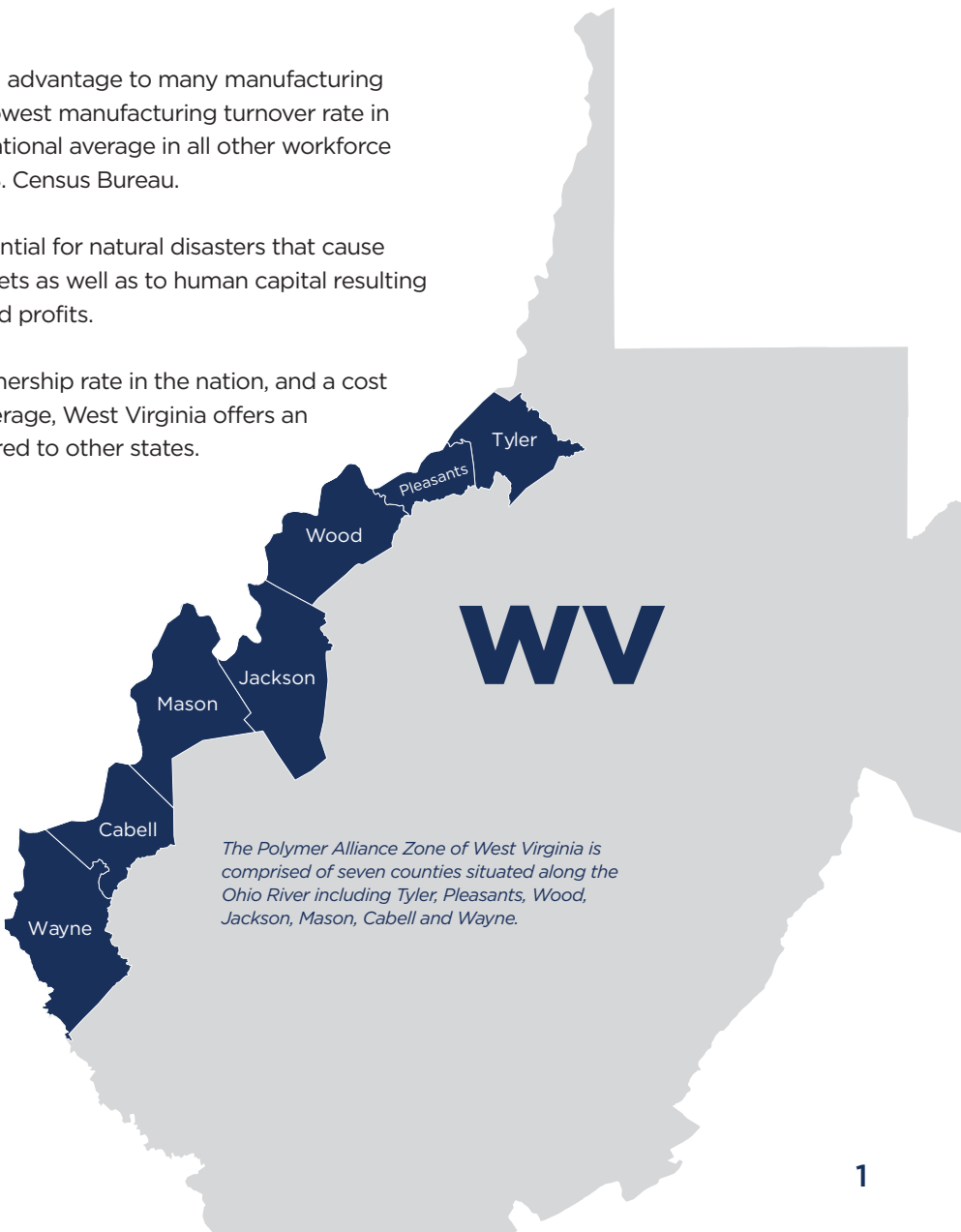
The cost of doing business in the Polymer Alliance Zone is among the lowest in the country. The area is now the low cost supplier of natural gas, NGLs and ethane representing an astounding 85% of new U.S. natural gas supply. U.S. natural gas production in the region is projected to account for 45% of the nation's total production by the year 2040 producing as much natural gas as the entire U.S. produced prior to the shale revolution. PAZ provides access to abundant NGLs and proximity to over 70% of the nation's polyethylene and polypropylene manufacturing within a day's drive.

According to IHS Markit®, a global leader in incisive and thought-provoking analysis, the region, known as Shale Crescent USA (The Ohio River Valley of West Virginia, Ohio and Pennsylvania) is the most profitable location to build a petrochemical plant.

West Virginia provides a critical advantage to many manufacturing companies. The state has the lowest manufacturing turnover rate in the country and is below the national average in all other workforce categories according to the U.S. Census Bureau.

Our location mitigates the potential for natural disasters that cause serious damage to tangible assets as well as to human capital resulting in reductions in productivity and profits.

And, with the highest homeownership rate in the nation, and a cost of living 14% below national average, West Virginia offers an incredible quality of life compared to other states.





The Polymer Alliance Zone of West Virginia Value Proposition

**Petrochemical Plant Operating Profits
Exceed the Gulf Coast**

**An Abundance of High-Value
Natural Gas Liquids**

Low Ethane Costs

**Access to the Ohio River for
Transportation and Processing**

**A Day's Drive to over 70% of U.S.
Polyethylene and Polypropylene Demand**

**The Lowest Manufacturing
Turn-Over Rate in the Country**

**A Day's Drive to over 50% of the U.S.
Population and 30% of Canadian Population**

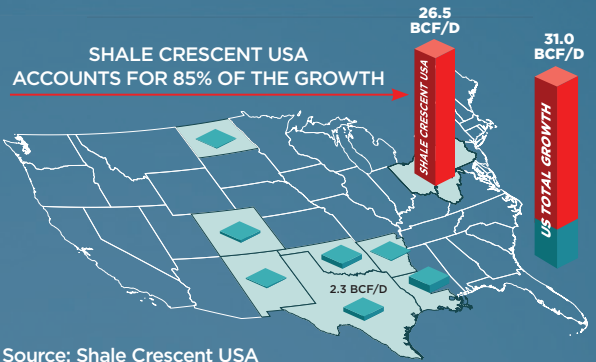
**The Highest Homeownership
Rate in the Nation**

The PAZ Energy Advantage

The Polymer Alliance Zone sits on top of the prolific Marcellus and Utica shale plays and is located in the Shale Crescent USA™ region of West Virginia, Ohio and Pennsylvania.

According to the EIA and Shale Crescent USA, the region is the number one producer of natural gas and the number one NGL producer in the USA. The region produces more natural gas than the state of Texas.

GROWTH IN MARKETING NATURAL GAS PRODUCTION 2008-2018



Utica and Marcellus Shale



Shale Crescent USA:

- #1 U.S. Natural Gas Producing Basin
- #1 U.S. Natural Gas Producer
- #1 U.S. NGL Producer
- Produces more Natural Gas than Texas

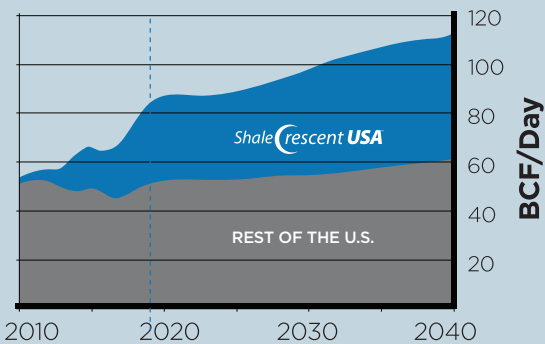
Natural gas from the Shale Crescent USA currently accounts for 32% of total U.S. natural gas production and is projected to account for 45% by the year 2040, producing as much natural gas as the entire U.S. produced prior to the shale revolution.

The area is now the low cost supplier of natural gas and ethane and represents an astounding 85% of new U.S. natural gas supply. If West Virginia, Ohio and Pennsylvania were a country, it would be the third largest producer of natural gas in the world.

The southwest Marcellus shale play is rich in NGLs with high concentrations of ethane. The U.S. Energy Information Administration (EIA) projects the region will be producing nearly one-third of all the NGLs in the United States by the year 2040. IHS Markit estimated that the Shale Crescent USA could support up to five Ethane Cracker Plants. Shell Chemical is now constructing a new Ethane Cracker in the region.

A June, 2020 report from the U.S. Department of Energy concluded numerous facilities producing petrochemical derivatives in the region will be positioned to provide feedstocks to new and existing

NATURAL GAS PRODUCTION



downstream manufacturers. The report determined there are near-term prospects for significant in-region supply growth of polyethylene, polypropylene, other cracker byproducts, and increasing volumes of natural gas-derived primary chemicals.

NGL production is projected to increase from 0.60 million b/d in 2018 to 1.17 million b/d in 2040. Ethane production in the region is forecasted to contribute approximately 25% of total U.S. production by the year 2040 according to IHS Markit.

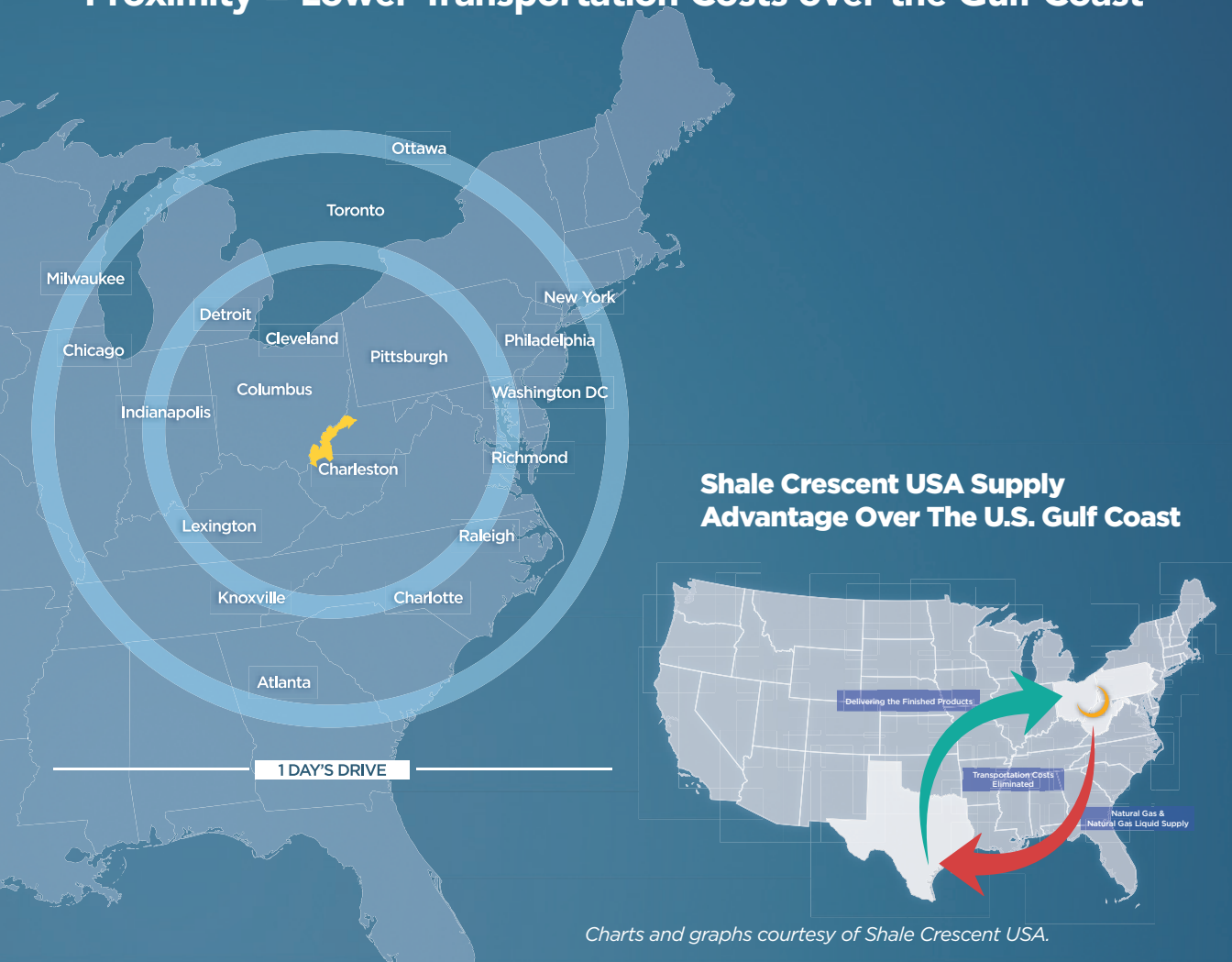
Proximity Advantage

An abundance of low-cost natural gas and NGLs is one key advantage to downstream companies conducting business in the Polymer Alliance Zone. Another important advantage is proximity to U.S. customers. PAZ is a regional hub for plastic and chemical manufacturers located within a day's drive of over 70% of U.S. polyethylene and polypropylene demand.

Businesses in the Polymer Alliance Zone have a significant geographic advantage resulting from market proximity.

- 77% of U.S. polypropylene demand is within a day's drive.
- 70% of U.S. polyethylene demand is within a day's drive.
- 50% of the U.S. population is within an 8-hour shift for trucking.
- 30% of the Canadian population is located within a day's drive.

Proximity = Lower Transportation Costs over the Gulf Coast



U.S. Department of Energy Report States “The energy-rich Appalachian region is now the single largest natural gas producing region of the country.”

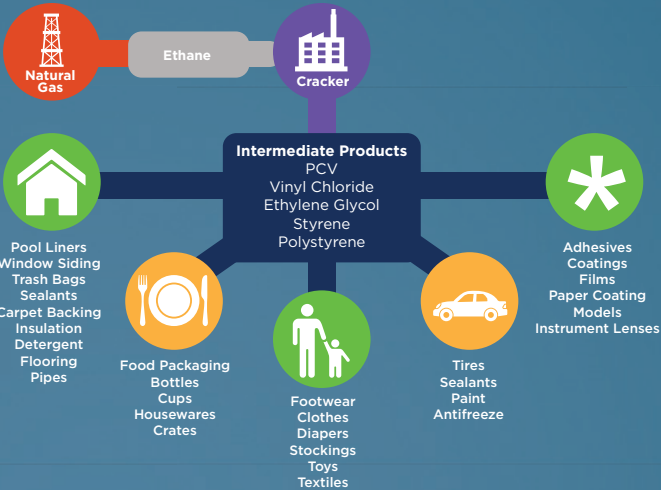
The recently published report “The Appalachian Energy and Petrochemical Renaissance. An Examination of Economic Progress and Opportunities,” prepared by the U.S. Department of Energy, states “The energy-rich Appalachian region is now the single largest natural gas producing region of the country and increasingly is becoming a major producer of natural gas liquids, including ethane, propane, and butane.” The report indicates the shale gas transformation taking place in Appalachia is anticipated to outperform all U.S. gas producing basins in production growth with the prospect of lasting for more than a century. The natural gas produced in the region is rich in NGLs including ethane, propane, and butane creating the opportunity for a rebirth of the petrochemical manufacturing industry that was born in West Virginia in the early 1900s.

Shell’s petrochemical complex under construction in Monaca, Pennsylvania that will convert ethane to polyethylene plastic resin, represents the first of what could be multiple facilities in the region. PTT is consid-

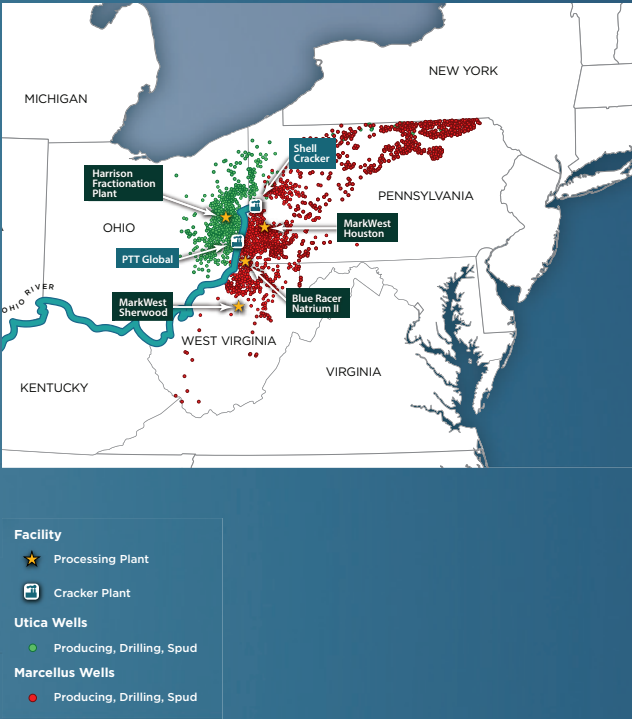
ering building an ethane cracker complex in Belmont County, Ohio. Ethane supply in the region can support multiple ethane cracker plants as well as multiple facilities that produce petrochemical derivatives. The DOE report further states “Building on this existing base, the opportunity for downstream manufacturing using petrochemical derivatives, such as ethylene or plastic resins, is enormous. For example, the Appalachian region annually produces over \$30 billion in plastic consumer goods using feedstocks largely imported to the region.” The U.S. Department of Energy Report confirmed the findings by IHS Markit that the region’s production of natural gas and NGLs provide for lower costs, greater proximity to market, and increased profitability.

Polymer companies operating in the Polymer Alliance Zone of West Virginia are taking advantage of low-cost natural gas. They also are operating in close proximity to 70 percent of downstream manufacturing demand for polyethylene resin and 77% of polypropylene demand within 500 miles. PAZ provides an ideal location for polymer companies manufacturing components for medical equipment, automotive parts, pipes, specialty chemicals, films, agricultural products, and hundreds of products used by consumers every day.

Ethylene Chain



Location Advantage



Greater Opportunities for Success

The Polymer Alliance Zone Offers Enhanced Profit Potential

Beyond access to resources, petrochemical investment in the Polymer Alliance Zone of West Virginia is cost-effective. A 2018 IHS Markit® study, *“Benefits, Risks, and Estimated Project Cash Flows: Ethylene Project Located in the Shale Crescent USA vs. the U.S. Gulf Coast,”* found the Shale Crescent USA region will “provide a significant financial advantage” over the U.S. Gulf Coast for companies investing in new petrochemical projects. The savings generated by abundant NGLs, coupled with proximity to the market and thus lowered delivered costs, are substantial benefits for investors.

A \$3 billion petrochemical project in the Shale Crescent USA region would generate an \$11.5 billion pre-tax cash flow, as well as a NPV15 of \$713 million...four times higher than the Gulf Coast.

The study found ethane costs to be 32 percent lower in the region than on the Gulf Coast, while ethylene, a petrochemical derived from ethane, would cost 23% less to produce.

For manufacturers located in the Polymer Alliance Zone of West Virginia, the market and supply are within close proximity. The abundance of NGLs and quick access to markets means substantial savings on transportation costs and reduced vulnerability to disruptions on cross-continent infrastructure for high-energy intensive manufacturers.

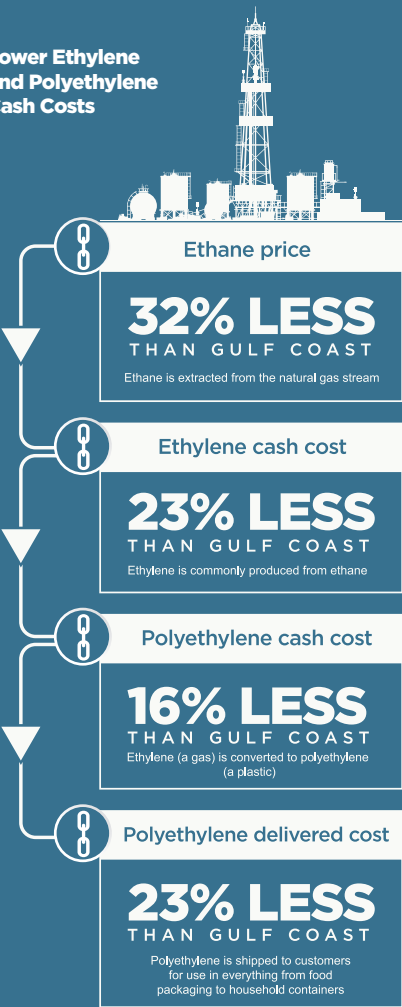
West Virginia’s Cost of Doing Business is Among the Lowest

West Virginia’s cost of doing business is among the lowest in the country. The state ranked 6th in CNBC’s 2019 America’s Top States for Business for cost of doing business. Additionally, electrical rates rank 14th lowest in the nation.

Cost-of-Living 14% below National Average

West Virginian’s enjoy a cost-of-living that is 14% below national average and the highest homeownership rate in the nation at 75.8%. “Almost Heaven” West Virginia features quaint small towns, top-ranked universities, four season outdoor activities, award-winning healthcare institutions, a thriving arts community, and magnificent natural beauty.

Lower Ethylene and Polyethylene Cash Costs

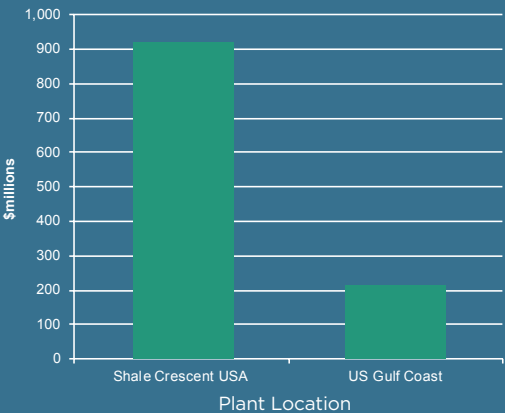


Note: Each percentage represents how much less the product is expected to cost in 2023 in the Shale Crescent USA region
Source: IHS Markit © 2017 IHS Markit: 1713297

NPV15 is 4x higher in the Shale Crescent USA than the Gulf Coast.



NET PRESENT VALUE IN 2020, SHALE CRESCENT USA VS GULF COAST APPLYING A 15% DISCOUNT RATE



Source: IHS Markit © 2018 IHS Markit



Location.

Located along the Ohio River, offering tremendous access to water for transportation and processing, the Polymer Alliance Zone is also within a day's drive of 77% of U.S. polypropylene demand and 70% of polyethylene demand. The Polymer Alliance Zone of West Virginia is within a day's drive of 50% of the U.S. population and over 30% of the Canadian market. Major market demand centers including Washington, D.C, New York City, Baltimore, Pittsburgh, Charlotte, Raleigh, Columbus, Chicago, and Atlanta are all located within a day's drive away.

Pro-Business Climate

West Virginia has not added new business taxes for over 20 years and remains committed to providing a predictable and reliable business climate. The state has the third best cash surplus in the nation and is rated 19th according to the Tax Foundation's 2019 State Business Tax Climate Index.

West Virginia has some of the lowest workers compensation rates in the country and has reduced workers compensation rates for 14 consecutive years. The state eliminated its Business Franchise Tax in 2015, saving taxpayers more than \$500 million from the first reduction to the final elimination.

The state's Corporate Net Income Tax rate was reduced to 6.5 percent in 2014, helping corporations to realize more than \$53 million per year in net annual tax savings. In addition, West Virginia removed approximately \$180 million of business tax burden in FY 2014 and roughly \$800 million over the past eight years.

Our Team Is Here for Your Team.

We are here to help you find the optimum site for your business relocation or expansion. PAZ has an inventory of sites and buildings available including a number of shovel-ready sites.



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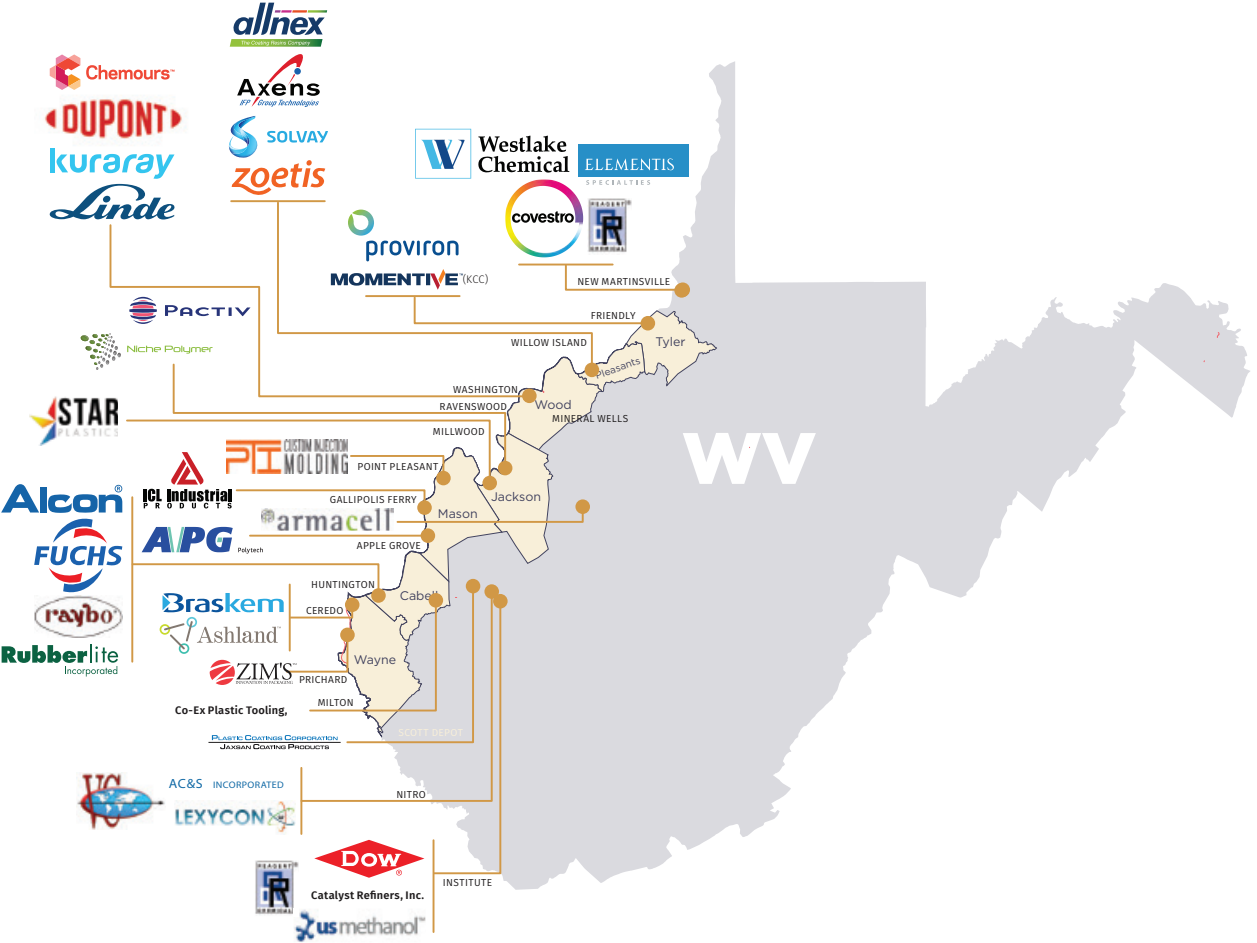
To search for available properties, community data and to compare communities within the Polymer Alliance of West Virginia, visit <https://properties.zoomprospector.com/westvirginia>.

West Virginia—Home to First Cracker Plant

The first cracker plant in the USA was built by Union Carbide at Clendenin, WV, in 1920. Although petrochemical production slowly shifted to the U.S. Gulf Coast, the introduction of horizontal drilling in the Marcellus and Utica shale plays has brought the cycle full-circle. Shell Chemical is constructing the Pennsylvania Petrochemicals Complex in Beaver County Pennsylvania, a major petrochemicals plant that will process ethane from shale gas.

Your Business Will be in Good Company

The Polymer Alliance Zone of West Virginia is home to industry leaders DuPont, Chemours, Kuraray, Linde, Solvay, Niche Polymer, Star Plastics, Braskem, Ashland, Rubberlite, Alcon, APG Polytech, Fuchs, Pactiv, Zoetis, Axens, Allnex, Provion, Momentive, Westlake Chemical, Elementis, Covestro, and others.



West Virginia Incentives and Programs

The Polymer Alliance Zone of West Virginia and the West Virginia Development Office recognize the importance of training and supporting the workforce of today and tomorrow. West Virginia offers a range of programs to help create successful business outcomes for employees, employers, entrepreneurs, and individuals. For more information on the programs referenced below, visit westvirginia.gov/incentives-and-programs.

Apprenticeship in Motion (AIM)

The goal of the West Virginia 'Apprenticeship in Motion' program is to improve your company employee output and skill sets by providing support and training that benefit the business and the worker.

AIM Benefits to Businesses:

- Training meetings
- Connection with business leaders
- Ability to direct curriculum design
- Quality workers inspired and eager to learn

AIM Benefits to Individuals:

- On-the-job training
- Technical education
- Increased wages
- Nationally recognized credential of qualifications

Opportunity Zones

Opportunity Zones are economically distressed communities where new investments, under certain conditions, may be eligible for preferential tax treatment. Investors in West Virginia's Opportunity Zones are eligible to receive private funding for community improvement and may be eligible for tax incentives. The West Virginia Opportunity Zones Toolkit can be downloaded at https://westvirginia.gov/wp-content/uploads/2020/09/OpportunityZone_Toolkit.pdf

Expedited Permitting

Economic development projects in the Polymer Alliance Zone of West Virginia now have the opportunity to receive expedited permitting. Certificates of critical economic concern for high-priority projects are awarded for meeting a set of criteria based on projected economic impact. These projects require regular, completed permit application status. The Expedited Permitting Application can be downloaded online at <https://westvirginia.gov/expedited-permitting-application/>

West Virginia Incentives

West Virginia offers aggressive development assistance in the form of tax credits and financing programs that can reduce operating costs while providing improved productivity. Business assistance programs include corporate headquarters credits, Economic Opportunity Tax Credits, High-Tech Manufacturing credits, and Research and Development Sales Tax exemptions. Financial Assistance programs include Direct Loan, Indirect Loan, Industrial Revenue Bonds, and the West Virginia Infrastructure and Jobs Development Council funds. Learn more at <https://westvirginia.gov/wv-incentives/>.

West Virginia's Work Force Training Network

West Virginia workers boast the lowest manufacturing turnover rate in the nation according to the US Census Bureau, QWI quarterly data.

Workforce Training

Workforce training is a top priority in West Virginia through specialized education and training programs. The Governor's Guaranteed Work Force Program provides new and growing businesses with technical and financial assistance to augment the skills of employees.

WorkForce West Virginia

WorkForce West Virginia has the largest online database of job seekers and job openings in the state. Comprised of a network of workforce development services for employers, including pre-screened pools of candidates, assistance throughout the hiring process, and support for employee training and education, the team at WorkForce West Virginia can assist your company with detailed information on tax incentives, labor market data, and with the unemployment process,

Community and Technical Colleges

West Virginia's Community and Technical College System offers businesses and industries the opportunity to partner to develop specialized education and training programs. Over the last decade, West Virginia's Community and Technical Colleges have created nearly 150 new customer training programs, many in partnership with local companies and business investors.

West Virginia Invests Grant Program

This new financial aid initiative is intended to cover the cost of basic tuition and fees for certificate or associate degree programs in specific high-demand fields at a participating West Virginia public two - or four - year institutions. West Virginia Invests was created by the Legislature during the 2019 regular session and the program is managed by the West Virginia Council for Community and Technical College Education.

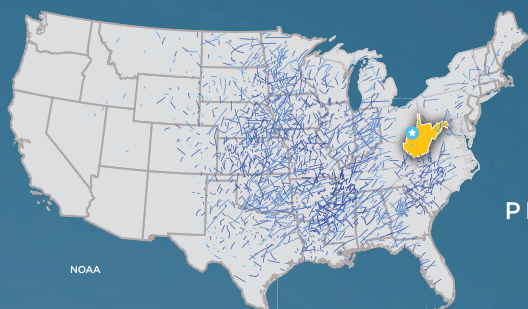


Our Location Mitigates Natural Disaster Probability

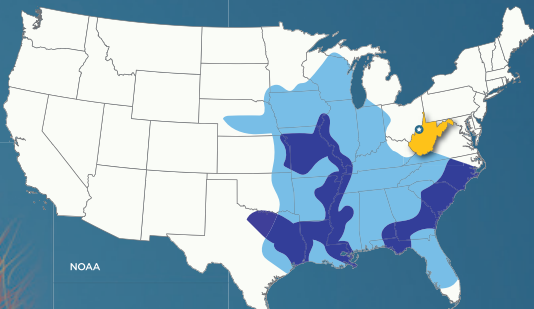
Natural disasters are becoming more frequent and dramatically more powerful and damaging. Regardless of your business location, natural disasters are going to occur that affect production, resources and profitability. The Polymer Alliance Zone is located in an area that diminishes those risks significantly thereby reducing damages and costs associated with natural disasters. The illustrations below from the National Oceanic and Atmospheric Administration (NOAA), the National Weather Service, and the Department of the Interior's U.S. Geological Survey (USGS) visually tell the story.

West Virginia's Location Reduces Risk of Natural Disasters.

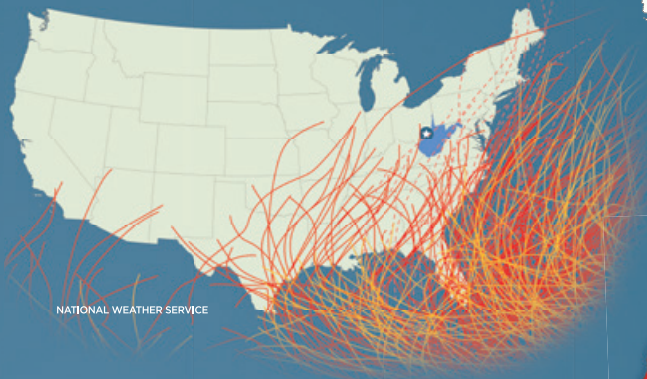
56 YEARS OF TORNADO TRACKS



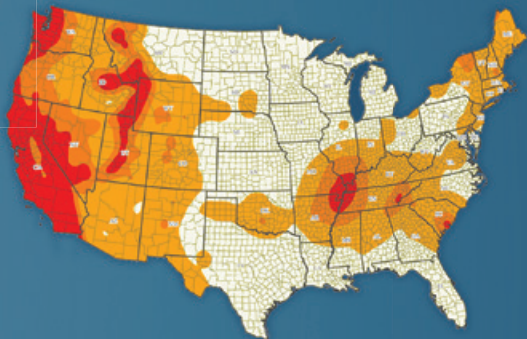
PREVALENT FLOOD RISKS IN THE US



MAJOR HURRICANE HISTORY



LIKELY HOOD OF EARTHQUAKES



West Virginia has

**680
MILES**

of navigable inland
waterways, ranking it

16TH in the
nation.

Source: National Waterways Foundation

In 2018,

48.8M tons of freight

valued at

\$2.9 BILLION

moved on West Virginia's
inland waterways, which
is equivalent to

1.2 MILLION TRUCKS.

Source: National Waterways Foundation



Access to Water for Transportation and Processing

The seven counties of the Polymer Alliance Zone, all bordering the Ohio River, offer over 162 miles of river access for transportation and processing. Over 48 million tons of freight valued at over \$2.9 billion moved on West Virginia's inland waterways in 2018, the equivalent of 1.2 million trucks. One barge tow carries the load of hundreds of rail cars and more than a thousand trucks, according to the National Waterways Foundation.

The Port of Huntington Tri-State, located on the Ohio River in Huntington, West Virginia, is one of the largest inland ports in the United States. It is the largest river port in the state of West Virginia and the 15th-largest in the United States.

Carrying the Load

One Barge Tow carries the load of hundreds of rail cars and more than a thousand trucks.

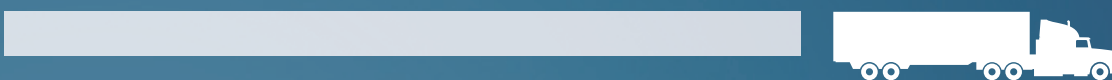
One 15 Barge Tow



216 Rail Cars & 6 Locomotives



1,050 Large Semi Tractor-Trailers



Source: National Waterways Foundation

*National Waterways Foundation

“An unprecedented, world class opportunity awaits polymer manufacturers in the Polymer Alliance Zone. The region offers low-cost natural gas and NGLs, proximity to end-use markets, profit potential exceeding the U.S. Gulf Coast, the lowest manufacturing turn-over rate in the country, and the highest homeowner rate in the USA.”

— Keith Burdette, President and CEO
Polymer Alliance Zone of West Virginia



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