

**PITTSBURGH  
REGION®**

**NEXT IS NOW.**

# ENERGY



NATURAL GAS // NUCLEAR POWER  
// WIND POWER // ENERGY STORAGE



# Powering the Region and the Nation with Resources and Innovation Across Sectors

From wind power to natural gas, storage solutions to sustainability-based manufacturing, southwestern Pennsylvania is a powerhouse in every sense of the word. Steeped both in energy resources and in the knowledge base to harness them, the Pittsburgh region stands at the forefront of shaping the nation's energy future by developing responsible practices and technologies to achieve the supply we demand while protecting the people and places we love.

New efficiencies, a work ethic that is second to none, and a dedication to a future that works for everyone make Pittsburgh the premier location for those who are looking to be part of the next generation of energy.

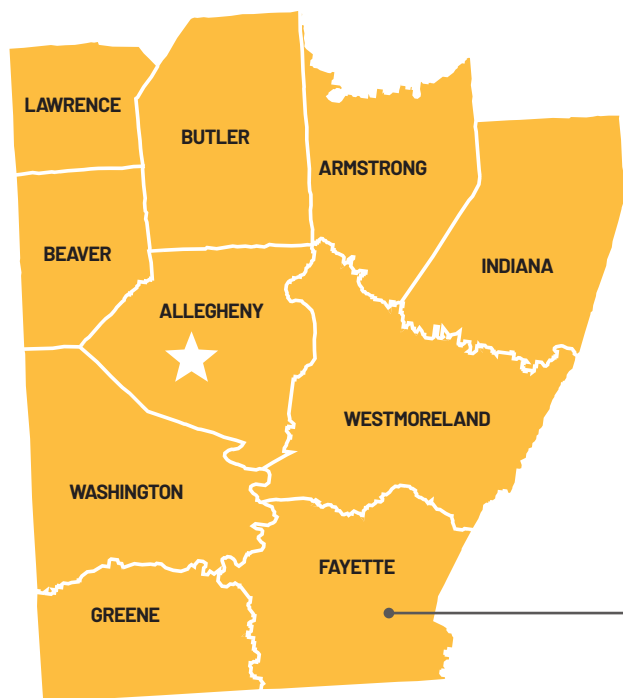


## Did you know?

**In 2021**, Allegheny County entered a 35-year agreement with Rye Development to purchase renewable hydropower energy generated by the region's three major rivers. Throughout the life of the agreement, the hydropower energy will offset one million metric tons of carbon dioxide equivalent emissions and provide energy to 3,400 households each year.

**In 2018**, the University of Pittsburgh signed a letter of intent to purchase all the power supplied by Rye Development's plant at Allegheny Lock and Dam No. 2 below the Highland Park Bridge. The plant will supply 25 percent of Pitt's campus energy needs.

# The Pittsburgh Region **at a Glance**



**~2.6 MILLION  
POPULATION**

**\$169 BILLION  
GROSS  
DOMESTIC  
PRODUCT  
(2020)**

**10 COUNTIES**

**1.3 MILLION  
WORKFORCE**

**490,000+  
MILLENNIAL  
(25-39)  
POPULATION  
(2021)**

Including the 5th largest  
share of college-  
educated millennials  
among top metros

**9th most livable U.S. city**  
—*Livability.com*

**#7 U.S. city for  
STEM professionals (2022)**  
—*WalletHub, 2022*

**11 ADVANCED  
INDUSTRY SECTORS**

driving region's talent  
growth (Brookings)

**21% INCREASE  
IN TECH TALENT  
LABOR POOL**

since 2013 (CBRE)

**~240,000  
STUDENTS**

in the broader  
regional talent pool

**41,000+  
GRADUATES**

of 70+ regional  
academic institutions

**40% OF WORKERS  
HOLD 4+ YEAR  
DEGREES**

**#1 METRO  
FOR COLLEGE  
GRADUATES**

(LinkedIn & Trulia, 2016)

THE PLACE

OUR TALENT

# Our Talent: Powered by People

Throughout the region, the energy labor supply is as rich as its natural resources. Here's a snapshot of what our talent pool has to offer:

**~38,800 PEOPLE  
EMPLOYED IN ENERGY**

**3,813 ANNUAL GRADS IN  
TECH-RELATED FIELDS**

Top Occupations in Energy	Employment (2020)	% of Industry Employment	% of Total Occupational Employment	Wages	LQ <sup>1</sup>
Construction Laborers	1,858	5.5%	14.2%	\$41,647	1.22
Operating Engineers and Other Construction Equipment Operator	1,495	4.4%	26.6%	\$55,627	1.73
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	1,387	4.1%	41.9%	\$36,640	1.47
Service Unit Operators, Oil and Gas	1,206	3.6%	78.3%	\$35,808	4.84
First-Line Supervisors of Construction Trades and Extraction Workers	1,097	3.3%	20.3%	\$67,036	1.01
Heavy and Tractor-Trailer Truck Drivers	987	2.9%	6.0%	\$49,617	1.02
Laborers and Freight, Stock, and Material Movers, Hand	871	2.6%	3.8%	\$31,784	1.00
Office Clerks, General	776	2.3%	2.6%	\$35,099	1.31
Roustabouts, Oil and Gas	776	2.3%	78.5%	\$35,054	3.05
General and Operations Managers	730	2.2%	4.0%	\$109,435	0.95
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	687	2.0%	6.2%	\$61,688	1.07
Electrical Power-Line Installers and Repairers	672	2.0%	81.2%	\$82,785	0.91
Miscellaneous Assemblers and Fabricators	576	1.7%	7.9%	\$36,403	0.73
Industrial Machinery Mechanics	568	1.7%	13.7%	\$55,547	1.34
Welders, Cutters, Solderers, and Brazers	517	1.5%	14.3%	\$47,687	1.10
Continuous Mining Machine Operators	495	1.5%	81.4%	\$56,585	5.31
Customer Service Representatives	484	1.4%	1.9%	\$35,484	1.13
First-Line Supervisors of Production and Operating Workers	472	1.4%	9.6%	\$62,872	1.04

1. Location quotient (LQ) quantifies how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation.



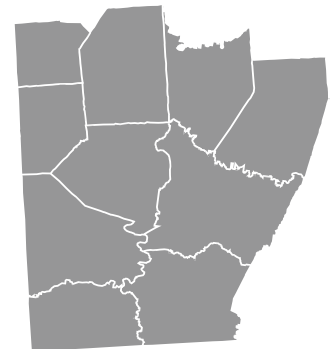
**Nine Fortune 500 companies**  
call the Pittsburgh region home:



## Leading Energy Companies in the Region

### Primary Product

<b>Westinghouse Electric Co.</b>	Nuclear Energy Manufacturing and Engineering
<b>Fluor (Bettis National Lab)</b>	Nuclear Energy Research
<b>CONSOL Energy Inc.</b>	Coal Mining
<b>Duquesne Light Holdings</b>	Electricity Distribution
<b>People's Natural Gas</b>	Natural Gas Distribution
<b>Eaton Electrical</b>	Energy Management
<b>Siemens</b>	Electrical Components
<b>First Energy</b>	Electricity Generation and Distribution
<b>Rosebud Mining</b>	Coal
<b>Bechtel Plant Machinery</b>	Nuclear Components



**10 for 10:**  
Businesses  
announced  
expansions in all  
10 of the region's  
counties during  
the past 10 years.

# Below Ground Resources

Each year, the U.S. consumes about 25 trillion cubic feet of natural gas, and Pennsylvania is the second largest natural gas producer in the nation, thanks in large part to the Pittsburgh region.\* From its position atop the Utica and Marcellus shale plays, Pittsburgh is geologically situated at the heart of energy development.

The Marcellus Shale formation lies several thousand feet below the earth's surface and is the largest natural gas field in the United States, as well as one of the fastest growing sources of natural gas production. A few thousand feet lower lies the Utica shale formation, which sources natural gas, natural gas liquids, and crude oil.

By early 2015, the Marcellus Shale was yielding about 14.4 billion cubic feet of natural gas per day, and it was the source of more than 36 percent of shale gas and 18 percent of the total dry gas production in the nation.

\*U.S. Energy Information Administration, Natural Gas Annual, 2020



## BY THE NUMBERS

(Source: U.S.  
Geological Survey)



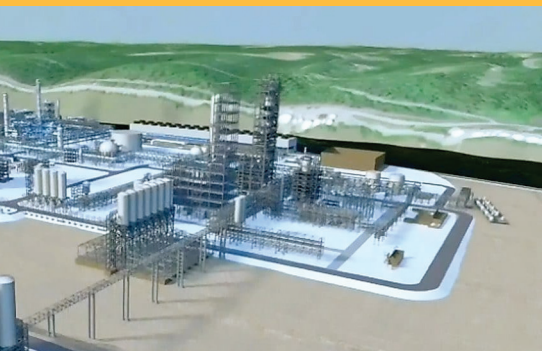
**1.5 BILLION BARRELS  
OF NATURAL GAS LIQUIDS**  
contained in the Marcellus Shale

**14.4 BILLION CUBIC FEET  
OF NATURAL GAS PER DAY**  
yielded from the Marcellus Shale

**1.8 BILLION BARRELS  
OF OIL**  
in the Point Pleasant-Utica Shale

**214 TRILLION  
CUBIC FEET  
OF TECHNICALLY  
RECOVERABLE  
CONTINUOUS  
RESOURCES OF NATURAL  
GAS**  
in the Appalachian Basin

**986 MILLION BARRELS  
OF NATURAL GAS LIQUIDS**  
in the Point Pleasant-Utica Shale



## Corporate Players



**Shell:** Headquartered in the United Kingdom, Shell is an integrated oil and gas company that explores for, produces, and refines oil globally. Shell committed \$6 billion to building an ethane cracker plant in Beaver to leverage access to the Marcellus and Utica shale plays. At peak construction, the project employs 8,000 people, and when fully operational, the plant is expected to employ 600 full-time workers.




**CNX Resources Corp.:** This spinoff of CONSOL Energy Inc. focuses on exploring, producing, gathering, processing, and acquiring natural gas in the Appalachian Basin. Headquartered in Canonsburg, it is the third-largest shale gas driller in the region. Through its CNX Foundation, the company will invest \$17.5 million in social initiatives and \$12.5 million in environmental initiatives by 2027. CNX also is the first producer in the Appalachian Basin to use 100 percent electricity on a well pad.



**EQT Corp.:** The largest independent producer of natural gas in the U.S., EQT has been headquartered in Pittsburgh since 1888. It operates 1,985 wells in the state and acquired Alta Resources LLP to increase its daily natural gas production to nearly 6 billion cubic feet.



**Range Resources:** Range pioneered exploration and production of the Marcellus Shale in 2004 and today is one of the most active natural gas drillers in Pennsylvania. Recently, Range tested an all-electric frack unit on a dry-gas pad in the region, saving \$1.2 million in fuel costs over three months, reducing truck traffic as well as environmental impact.



The Pittsburgh region  
is committed to incubating  
environmentally conscious  
energy alternatives.

## Incubating a More Sustainable Future

In addition to traditional energy source development, the Pittsburgh region also is committed to incubating more environmentally conscious energy alternatives.

Since 2012, South Chestnut Wind Farm has put 23 wind turbines online. Owner Iberdrola Renewables is in the midst of a 20-year agreement to send the power generated by the farm to Washington, D.C., where it provides about 35 percent of the electricity needed to power municipal buildings. Elsewhere in Fayette County, Mill Run Wind Farm operates 10 turbines.



**Energy storage** is also an important part of the region's renewable profile. Eos, a manufacturer of zinc-based batteries, operates a plant in Turtle Creek. Recently Eos assumed full ownership of HI-POWER, a joint venture it founded with Holtec International to expand production.

### SPOTLIGHT: RENEWELEC

Sponsored by the National Energy Technology Laboratory, Electric Power Institute, local foundations and Carnegie Mellon University's Department of Engineering & Public Policy, this project seeks to assist the nation in transitioning to cost-effective, reliable electric generation that is equitable and environmentally friendly.

# Rethinking Traditional Sources

Pennsylvania ranks second in the nation for nuclear power generating capacity with five nuclear power plants, with a major one – Beaver Valley – in the Pittsburgh region. Westinghouse also maintains a presence in the region, with half of the world's reactors based on the company's technologies pioneered in Pittsburgh. Pittsburgh also is home to the Bettis Atomic Power Laboratory, the U.S. Navy's primary nuclear research facility, in suburban West Mifflin. It employs about 2,300 people and is operated via contract with Fluor Corp. The lab recently was awarded 31 percent of a \$1.8 billion contract with the Navy to make submarine powering nuclear propulsion systems.



The Westinghouse Materials Center of Excellence Hot Cell Facility in Churchill, Pa. tests unirradiated and irradiated materials.

## COMPANY SPOTLIGHT: BECHTEL PLANT MACHINERY, INC. (BPMI)

This company designs and manufactures nuclear power plant components for submarines and aircraft carriers used in the Naval Nuclear Propulsion Program. Based in Monroeville, this wholly owned subsidiary of Bechtel National Inc. employs about 1,000 people. Since 2014, BPMI has worked on 12 different Department of Defense contracts totaling more than \$11 billion.

## R&D SPOTLIGHT: NATIONAL ENERGY TECHNOLOGY LABORATORY (NETL)

Located in Bruceton, about 12 miles south of downtown Pittsburgh, the Pittsburgh NETL office first opened in 1910 as a facility for investigating safer methods of coal mining. In 1999, it became part of the National Energy Technology Laboratory, and its role expanded to oversee federal contracts for energy research and functions as a lead science and technology research center.

Today, the NETL performs research and development on the supply, efficiency, and environmental constraints of fossil energy resources.

Pennsylvania ranks second  
in the nation for nuclear  
power generating capacity.





## Institutional Strengths

As the home of several prominent colleges and universities, the region's institutional and academic presence in the energy sector is robust, offering thought leadership as well as workforce development and knowledge creation that guides long-range strategic planning.

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### CARNEGIE MELLON UNIVERSITY

**Wilton E. Scott Institute for Energy Innovation:** This research initiative focuses on energy efficiency and sustainable energy resources.

**Carnegie Mellon Electricity Industry Center:** A joint venture between the College of Engineering and the Tepper School of Business, the center identifies, analyzes, and solves problems for the electricity industry.

**Center for Climate and Energy Decision Making:** Funded by Carnegie Mellon and the National Science Foundation, this center develops insights on the intersection of climate and energy as well as transformation of the energy system.

**ChargeCar:** This project within CREATE Lab to provide electric vehicle conversions is sponsored by organizations ranging from local auto body shops to Bosch, Bombardier, Google, Heinz Endowments, Intel, and Tesla.

**Vehicle Electrification Group:** This group was founded in 2009 to research power systems design, energy security implications across the life cycle, consumer behavior and policy.

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### COMMUNITY COLLEGE OF BEAVER COUNTY

**The Shell Center for Process Technology:** This center trains an existing and new workforce for careers in the process technology field.

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## THE ENERGY INNOVATION CENTER

This 200,000 square foot facility offers tenant space, workforce development, training, and education for clean and sustainable energy markets. Tenants include Epiphany Water Solutions, which seeks to recycle wastewater through a less expensive, decentralized technology that provides clean water at the point of use. Epiphany has deployed distillation plants and evaporators across the country, including clients on Marcellus Shale well pads. Many universities also maintain energy R&D operations and training facilities in the center.

Another tenant, Exus Management Partners, is an investment and asset management firm focused on the renewable energy sector with offices around the world.

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## CRITICAL INFRASTRUCTURE WORKFORCE ACADEMY (CIWA)

Established in 2019 as a joint venture among the Energy Innovation Center Institute, Armstrong County Industrial Development Council and regional partners, CIWA supports the region's workforce development, training, and certification needs in energy, utility, and related construction industries.

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## INDIANA UNIVERSITY OF PENNSYLVANIA

The university has established new degree programs, tracks, and concentrations for majors and courses related to Marcellus Shale developments.

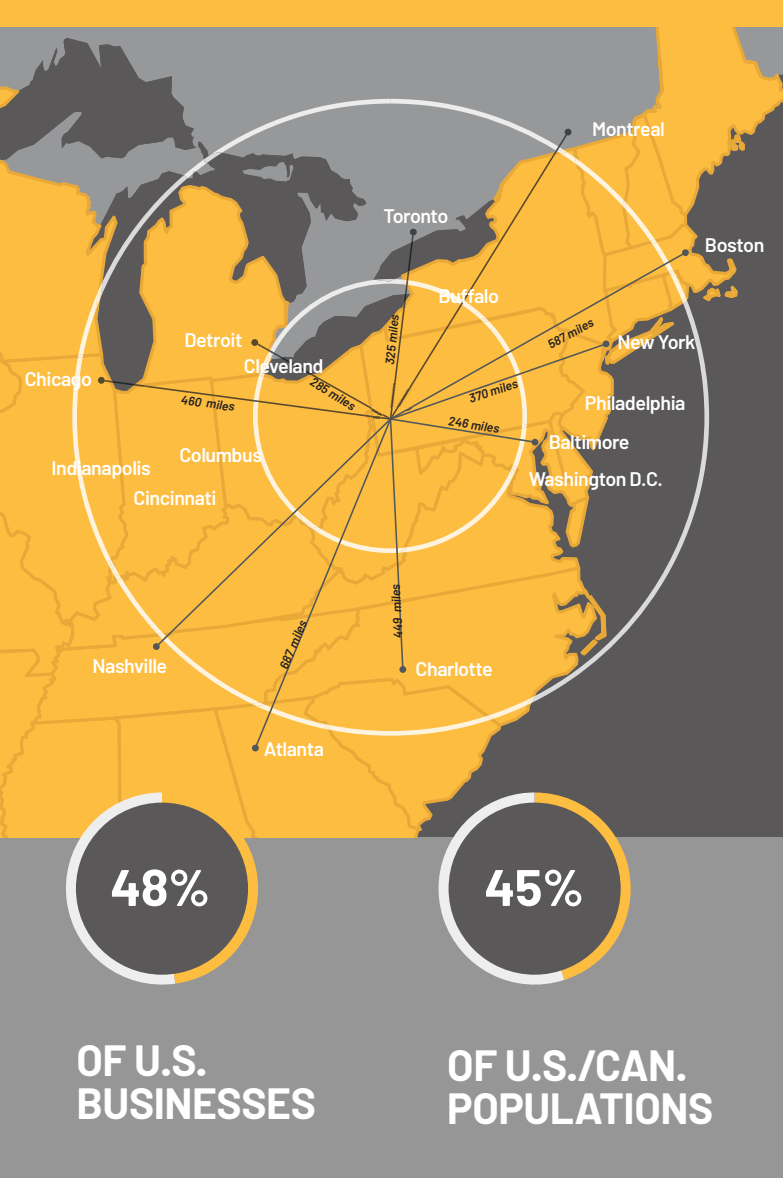
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## UNIVERSITY OF PITTSBURGH

**Center for Energy:** This center works across departments from the Swanson School of Engineering, Dietrich School of Arts and Sciences, Law School, Joseph M. Katz Graduate School of Business, and the Graduate School of Public and International Affairs. The U.S. Department of Energy's Nuclear Energy University Program awarded Pitt nearly \$1.9 million in 2020 for nuclear energy research, followed by \$1.6 million in 2021.

**Energy GRID Institute:** Housed at the Energy Innovation Center, this institute focuses on electric power utility scale research. Inaugural partners include Eaton, FirstEnergy, Siemens, and others.

**Electric Power Systems Laboratory:** This multi-use facility conducts research and education that complements the Eaton Power Systems Experience Center in Warrendale, Pa.



## Energy: Moving in the Supply Chain

By land, air, or water, transportation both drives and is driven by energy. Pittsburgh has all three covered, as well as access to raw materials that reduce costs.

**3 CLASS 1 RAILROADS**

**6 INTERSTATE HIGHWAYS**

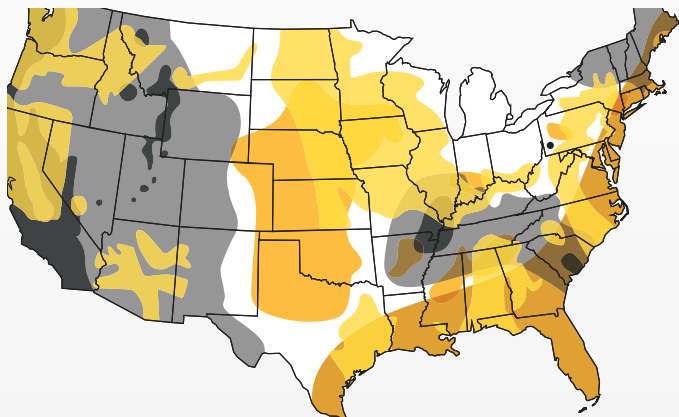
**4TH BUSIEST INLAND PORT IN U.S.**

Pittsburgh is within 500 miles (a day's drive) of:

- 48% of U.S. businesses
- 45% of U.S. and Canada populations
- 63% of national industrial output
- 53% of U.S. buying income
- 23 of the top 50 U.S. metropolitan retail markets, plus Montreal and Toronto, Canada

## SAFE FROM NATURAL DISASTERS

Nestled in a region safe from earthquakes, floods, and hurricanes, Pittsburgh ranks among cities least at risk for natural disasters.



**EARTHQUAKES | FLOODS | TORNADOES | HURRICANES**



**Wheels Up:** Pittsburgh International Airport is undergoing a \$1.4 billion modernization project with a target completion by 2024 and opening in 2025.



**Self Reliance:** Pittsburgh International Airport is the first airport in the world to be completely powered by natural gas and solar energy thanks to its unique microgrid, which increases resilience and maximizes public safety. From its unique position on top of the Marcellus Shale, Pittsburgh International Airport is one of just a handful of airports in North America that drills for natural gas on site. The airport also uses 8,000 solar panels to assist with power resilience and redundancy.

**8,000 SOLAR PANELS**  
in use at the Pittsburgh International Airport for power resilience

### Energy Exports for the Pittsburgh MSA by Year

		2020	1-Year Change	5-Year Change
Oil and Gas Extraction	Exports	\$115,408,904	-13.2%	N/A
	% of Total MSA Exports	1.5%	0.1%	N/A
	MSA Rank	13	8.3%	N/A
Coal <sup>1</sup>	Exports	\$1,497,194,252	N/A	3.8%
	% of Total MSA Exports	19.8%	N/A	25.4%
	MSA Rank	1	N/A	0.0%
Transmission & Distribution Components <sup>2</sup>	Exports	\$378,492,109	-12.4%	-31.3%
	% of Total MSA Exports	5.0%	0.5%	-17.1%
	MSA Rank	34	-2.9%	25.9%

1. Allegheny Conference on Community Development, International Trade Administration  
2. Electrical Equipment, Appliance, and Component Manufacturing Exports

# Living Here

Consistently ranked among the most livable metros in the United States, the Pittsburgh region is where you can get lost in nature or shine beneath city lights.

**Looking to buy?** Bankrate named us the top metro in the country for first-time homebuyers, while our median home price was \$169,000 in the first quarter of 2022.

With 15,000 acres of public parks and 400 miles of biking, hiking, and walking trails, 91% of Pittsburghers are a 10-minute walk from a park or green space. Our booming culinary scene has been recognized by both *The New York Times* and Zagat, and more than 90 breweries are spread out across our 10 counties.

**15,000 ACRES  
OF PUBLIC  
PARKS**

**400 MILES OF  
BIKING, HIKING &  
WALKING TRAILS**

**92% OF  
PITTSBURGHERS  
LIVE WITHIN  
10-MIN WALK OF  
GREEN SPACE**

**MEDIAN  
HOME PRICE  
\$169,000**

**90 BREWERIES  
ACROSS 10  
COUNTIES**



## Arts

We are the top city in the country for direct spending on the arts, and it shows in our cultural scene: the Pittsburgh region is home to 32 world-class museums and 30 concert venues, while the city's Cultural District plays host to 1,500 performances annually.

**32 WORLD-CLASS MUSEUMS**

**30 CONCERT VENUES**

## Sports

We are home to the Steelers, Penguins, and Pirates, as well as the Riverhounds professional soccer club and Division I college athletics. Our teams boast 16 championship titles to date, and Pittsburgh was named one of America's best sports cities by *The Sporting News*, *Bleacher Report*, *The New York Times*, *Forbes*, and *Lonely Planet*.

**1,500 PERFORMANCES PER YEAR**

**16 CHAMPIONSHIP TITLES**

**ONE OF AMERICA'S BEST SPORTS CITIES**

**Consistently ranked among America's most livable metros**

If building the nation's energy future is your goal, you're invited to contact us to learn more about why the Pittsburgh region offers you the ideal setting for energy initiatives.

Contact the Pittsburgh  
Regional Alliance

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