

Denver South Economic Development Partnership Industry Cluster Profile

ENERGY

Colorado is rich in a variety of energy-generating resources, including fossil fuels, renewable energy, and alternative fuels. The state remains a strong producer of traditional energy resources such as coal, oil, and natural gas, while maintaining its position as an internationally recognized hub for advances in renewable energy that contribute to its competitive advantage in the energy marketplace. Despite the recent economic downturn, increased global demand for clean, renewable energy technologies, or cleantech, continued to fuel growth and innovation, created jobs, and kept the state on the leading-edge of global competition for a sustainable energy future.

While the majority of Colorado's fossil fuel extraction activity has traditionally taken place in western Colorado, the bulk of the current oil drilling activity is occurring in Weld County. Further, many companies have Front Range refining and production facilities and Denver-area corporate offices. The energy cluster in the nine-county Metro Denver and Northern Colorado region¹ is organized around existing research assets and intellectual resources that fuel energy growth and encourage universities, research institutions, federal laboratories, and companies to deploy new technologies to the marketplace. Nanotechnology, biotechnology, robotics, and other advanced technologies are driving the next wave of energy products and strengthening links between fundamental science, commercialization, and innovation.

This report evaluates the energy industry in two subclusters: (1) fossil fuels and (2) cleantech. The Denver South region² continues to expand its energy industry with roughly 2,350 energy workers in approximately 310 companies in 2011. The fossil fuels subcluster includes companies involved in the extraction of naturally occurring fuels used to produce energy as well as the generation, transmission, and distribution of energy resources. The cleantech subcluster includes companies developing and delivering products and technologies across solar, wind, biomass, and sustainable transportation sectors that improve operational performance, efficiency, or productivity, while reducing energy costs and energy consumption. It is often difficult to distinguish how an organization's operations are divided between fossil fuels and cleantech components. For example, research is a critical component of all energy industries, from oil and gas to solar and wind energy. So that the two subclusters may be analyzed discretely, all energy research entities are included in the cleantech subcluster while all energy transmission and distribution activities are included in the fossil fuels subcluster even though a portion of the energy may be coming from renewable resources.

The Denver South region is an ideal location for energy companies to establish and expand. The region is characterized by its network of collaboration and unique assets that leads to cross-cluster convergence. The energy industry combines these regional assets to strengthen partnerships and enhance growth opportunities across industry clusters such as aerospace and aviation. Recent company announcements included:

¹ The nine-county Metro Denver and Northern Colorado region consists of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, and Weld Counties.

² The Denver South region consists of zip codes 80111, 80112, 80124, 80126, 80129, 80130, 80134, and 80237.

- Douglas County-based biofuels producer Gevo, Inc. received a \$600,000 contract with the U.S. Air Force. Under the contract, Gevo will provide the Air Force with at least 7,000 gallons of jet fuel. Gevo, Inc. was named Colorado’s High Impact Cleantech Company of the Year in 2011 by the Colorado Cleantech Industry Association. The company was recognized for its entrepreneurship, cleantech job creation, financing, and political leadership. Gevo recently received a landmark patent on its GIFT® separation unit, a key element in the company’s unique fermentation technology for the production of isobutanol and renewable hydrocarbons.
- SolarCity—a California-based residential solar panel leasing company—opened its second Colorado location in Parker. The new facility has warehouse facilities, a truck fleet, and space for the company’s other administrative activities and provides employees with easy access to customers between Colorado Springs and south Metro Denver.
- Clean coal technology company ADA-ES Inc. relocated its Littleton headquarters to Highlands Ranch to accommodate recent rapid growth. The company plans to hire additional staff to expand its various control technologies to meet new regulations imposed by the Environmental Protection Agency.
- Westmoreland Coal moved its corporate headquarters from Colorado Springs to Douglas County in 2011. The company cited its proximity to other mining and energy companies, greater access to energy company talent, and lower overall travel fees and expenses as key factors in their location decision.
- XTO Energy, a subsidiary of ExxonMobil, moved into a new western region headquarters in Meridian Business Park in Douglas County in early 2012. XTO Energy oversees the operations of nearly 700 employees in six states, including Colorado.

ENERGY ECONOMIC PROFILE FOSSIL FUELS

The fossil fuels subcluster includes companies that extract naturally-occurring mineral liquids, gases, and solids used to produce energy. The fossil fuels subcluster also includes mining machinery manufacturers and companies that provide mining, exploration, and related support services. Companies providing generation, transmission, and distribution of energy resources are also included. The fossil fuels subcluster consists of 30, six-digit North American Industry Classification System (NAICS) codes.

	Denver South	Nine-County Region	U.S.
Direct Employment, 2011	1,190	23,230	1,688,630
Number of Direct Companies, 2011	200	1,620	71,400
One-Year Direct Employment Growth, 2010-2011	7.7%	8.2%	7.1%
Five-Year Direct Employment Growth, 2006-2011	13.3%	24.7%	15.0%
Avg. Annual Direct Employment Growth, 2006-2011	2.5%	4.5%	2.8%
Direct Employment Concentration	0.6%	1.3%	1.2%

Sources: Dun & Bradstreet, Inc. Marketplace database, July-Sept. 2006-2010; Market Analysis Profile, 2011; Development Research Partners.

Fossil Fuels Employment

- In 2011, the fossil fuels subcluster directly employed approximately 1,190 people in the Denver South region. Drilling and mining activity tends to be concentrated in the Rocky Mountains, Weld County, and along the Western Slope, while fuel refineries and headquarters facilities are located throughout the Front Range.
- Approximately 88 percent of the employment in the fossil fuels subcluster was concentrated in Arapahoe (70 percent) and Douglas (18 percent) Counties.
- More than 53 percent of the Denver South region's fossil fuels employees worked in petroleum and natural gas exploration and extraction support activities for oil and gas operations.

Fossil Fuels Wages

The 2010 average annual salary for a fossil fuels worker in the nine-county region was \$103,010, compared with the national average of \$88,450. The nine-county region's fossil fuels payroll totaled \$2.2 billion in 2010.

Denver-Aurora-Broomfield MSA Occupational Salaries, 2010 Annual Average

Petroleum Engineers	\$133,050
Mining and Geological Engineers	\$97,410
Geological and Petroleum Technicians	\$67,520
Petroleum Pump System and Refinery Operators	\$67,050
Plan and System Operators	\$50,410

**Mean annual salary data is for the 10-county Denver-Aurora-Broomfield Metropolitan Statistical Area (MSA) consisting of Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, and Park Counties.*

Source: U.S. Bureau of Labor Statistics, Metropolitan Area Occupational Employment and Wage Estimates, May 2010, www.bls.gov.

Fossil Fuels Companies

- Nearly 200 fossil fuels companies operated in the Denver South region in 2011.
- Sixty-nine percent of the Denver South region's fossil fuels companies employed fewer than 10 people.
- Approximately 60 percent of the Denver South region's fossil fuels companies provided petroleum and natural gas exploration and extraction services and support activities for oil and gas operations.
- More than 87 percent of the Denver South region's fossil fuel companies were located in Arapahoe (64 percent) and Douglas (23 percent) Counties.

Major Fossil Fuel Companies

- Innospec Inc.
www.innospecinc.com
- Schlumberger Ltd.
www.slb.com
- Shell Exploration and Production
www.shell.com
- Westmoreland Coal Company
www.westmoreland.com

CLEANTECH

The cleantech subcluster includes companies that produce and conserve energy using wind, solar, biomass, fuel cells, hydroelectric resources, and green transportation technologies. Companies that manufacture renewable energy equipment, storage, and power transformers, and businesses that provide engineering and other support services are also included. The subcluster includes energy research companies that provide laboratory testing, scientific and technical consulting services, and institutional research related to the environment, natural resources, and energy. The cleantech subcluster consists of 29, six-digit North American Industry Classification System (NAICS) codes.

	Denver South	Nine-County Region	U.S.
Direct Employment, 2011	1,160	18,000	744,170
Number of Direct Companies, 2011	120	1,500	60,750
One-Year Direct Employment Growth, 2010-2011	14.6%	6.4%	7.5%
Five-Year Direct Employment Growth, 2006-2011	54.5%	35.2%	10.8%
Avg. Annual Direct Employment Growth, 2006-2011	9.1%	6.2%	2.1%
Direct Employment Concentration	0.6%	1.0%	0.5%

Sources: Dun & Bradstreet, Inc. Marketplace database, July-Sept. 2006-2010; Market Analysis Profile, 2011; Development Research Partners.

Cleantech Employment

- The cleantech subcluster directly employed approximately 1,160 people in the Denver South region in 2011.
- The Denver South region's growing solar-related energy companies, cutting-edge technologies, and industry partnerships fueled a 54.5 percent increase in the region's cleantech subcluster between 2006 and 2011, compared with a 35.2 percent and a 10.8 percent increase in the nine-county region and nationwide, respectively.
- Nearly 79 percent of cleantech employees provided energy research, environmental consulting, and air, water, and solid waste management services.

Cleantech Wages

The 2010 average annual salary for cleantech employees was \$74,410 in the nine-county region, compared with the national average of \$71,710. Nine-county payroll in the subcluster reached nearly \$1.3 billion in 2010.

Denver-Aurora-Broomfield MSA Occupational Salaries, 2010 Annual Average

Geoscientists	\$103,520
Environmental Engineers	\$88,790
Electrical Engineers	\$85,190
Environmental Scientists and Specialists	\$82,270
Environmental Engineering Technicians	\$44,610

**Mean annual salary data is for the 10-county Denver-Aurora-Broomfield Metropolitan Statistical Area (MSA) consisting of Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, and Park Counties.*

Source: U.S. Bureau of Labor Statistics, Metropolitan Area Occupational Employment and Wage Estimates, May 2010, www.bls.gov.

Cleantech Companies

- Approximately 120 cleantech companies operated in the Denver South region in 2011.
- More than 76 percent of the Denver South region's companies employed fewer than 10 people, while 0.9 percent employed more than 250 people.
- Nearly 62 percent of the Denver South region's cleantech companies provided environmental and scientific consulting and earth science services.

Major Cleantech Energy Companies

- ARCADIS
www.arcadis.com
- GE Energy
www.gepower.com
- Gevo Inc.
www.gevo.com
- Shaw Environmental
www.shawgrp.com
- URS Corporation
www.urscorp.com

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