

ADVANCED ENERGY JOBS IN INDIANA

Results of the 2016 Indiana Advanced Energy
Employment Survey

Prepared by BW Research Partnership



Advanced Energy Jobs in Indiana 2016

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Advanced Energy Economy Institute

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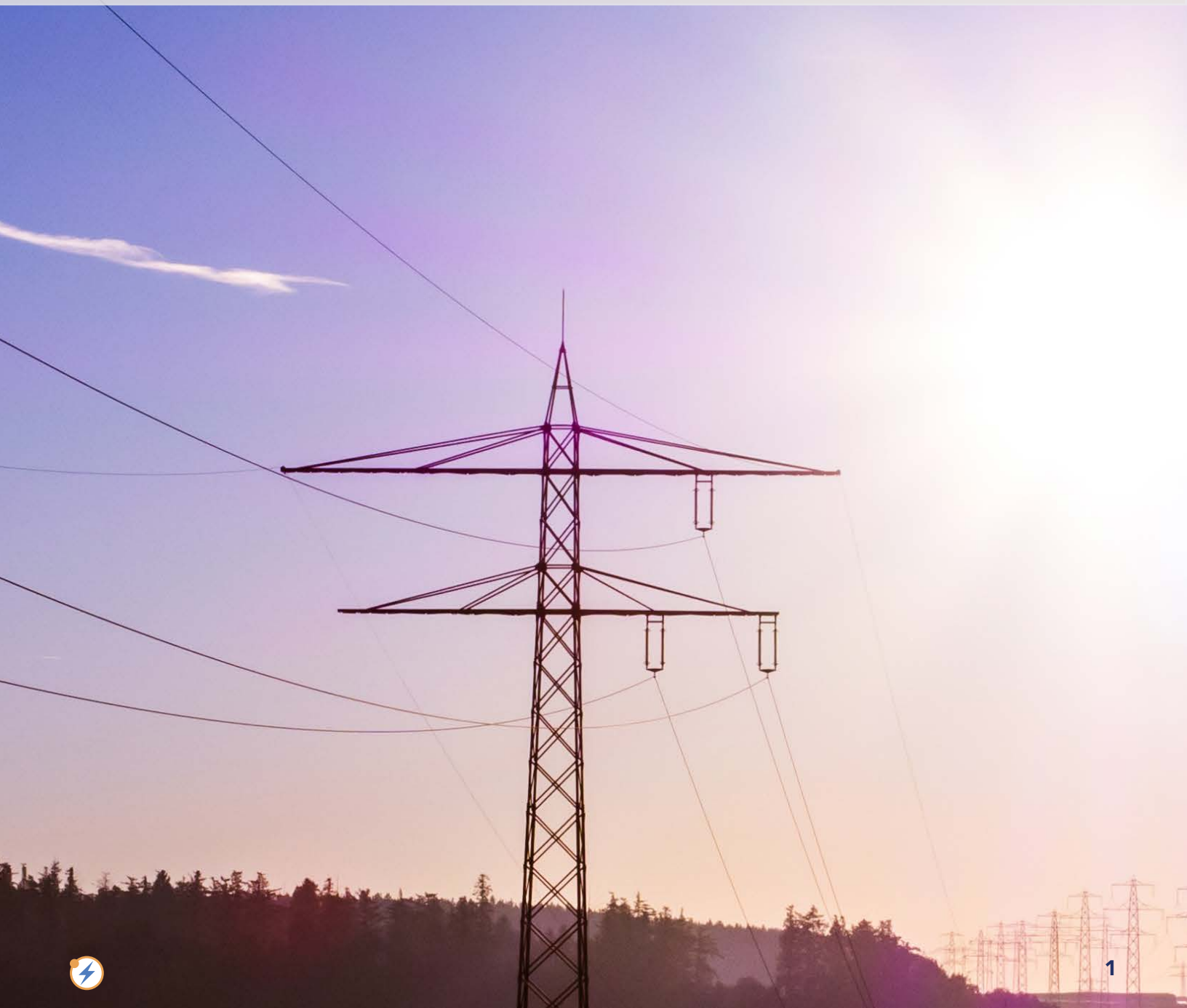
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What is Advanced Energy?

Advanced energy is a broad range of technologies, products, and services that constitute the best available technologies for meeting energy needs today and tomorrow. Defined in this way, advanced energy is not static but dynamic, as innovation and competition produce better energy technologies, products, and services over time. Today, demand response, natural gas-fueled trucks, high-performance buildings, energy-saving industrial processes, wind turbines,

onsite and large-scale solar power, biofuels, IT- and data-enabled efficiency, and nuclear power plants are all examples of advanced energy—they diversify energy sources, reduce costs to communities, and use energy resources more productively. For the purposes of this report, advanced energy employment has been divided into five industry segments: advanced generation, energy efficiency, advanced grid, advanced transportation, and advanced fuels.





About Indiana Advanced Energy Economy

Indiana Advanced Energy Economy (Indiana AEE) is a business organization that includes local and national advanced energy companies seeking to make Indiana's energy system more secure, clean, and affordable. Indiana AEE's mission is to transform public policy to enable rapid growth of advanced energy companies. Indiana AEE promotes the interest of its members through legislative and regulatory policy advocacy, convening groups of CEOs to identify and address cross-industry issues, and by raising awareness among policymakers and the general public about the opportunity offered by all forms of advanced energy for cost savings, electric system reliability and resiliency, and economic growth in the Hoosier state.

About BW Research Partnership

BW Research Partnership is a full-service research consulting firm with offices in California and Massachusetts. Recognized by the Congressional Research Office as developing the most accurate data to date, BW Research has conducted more clean energy labor market analyses than any other firm. Recent projects include: The U.S. Department of Energy's U.S. Energy and Employment Report (USEER), The Solar Foundation's National Solar Jobs Census series, wind and solar labor market reports for the National Renewable Energy Laboratory, and clean energy reports for a variety of state agencies, trade associations, and nonprofits.

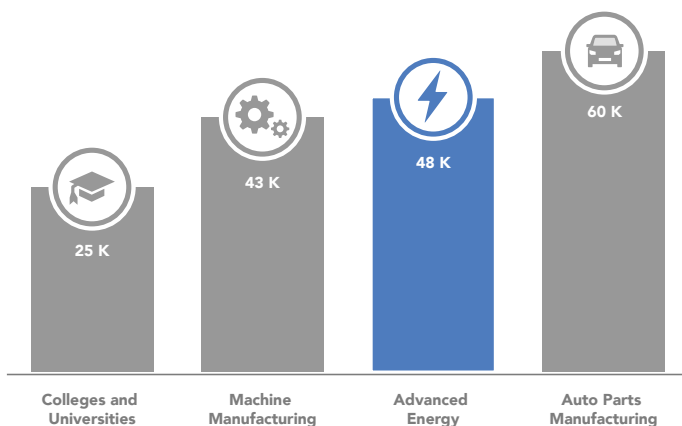
www.bwresearch.com



Advanced Energy Jobs in Indiana

Advanced energy employed nearly 48,000 workers in Indiana in 2015, nearly twice as many as colleges and universities, more than machinery manufacturing, and approaching auto parts manufacturing. One out of every 50 workers in Indiana is employed in the advanced energy industry. Employers are optimistic about the future, expecting to add over 900 new jobs by the end of 2016—an increase of 2%. But employers also report difficulty in finding the workers they need to fill advanced energy jobs.

Major Industry Comparisons, 2015



Advanced Energy Jobs in Indiana 2016 is the first report to quantify and analyze employment data and trends within Indiana's advanced energy economy.

Energy Efficiency is the largest segment of the advanced energy workforce in Indiana. The nearly 37,000 workers in this segment represent over three-quarters of total advanced energy jobs. This share tops the national average, where energy efficiency is about two-thirds of the advanced energy workforce. As is typical in many other states, about half of energy efficiency workers are employed in traditional heating, ventilation, and cooling (HVAC), meaning that there is plenty of room for growth in other energy efficiency-related activities such as advanced HVAC, advanced materials and insulation, efficient lighting, and Energy Star® appliances.

2016 HIGHLIGHTS

47,794
advanced energy jobs

921
new jobs by the
end of 2016

77%
of workers are in
Energy Efficiency

9%
of workers are in
Advanced Electricity
Generation

90%
of firms report
hiring difficulty



What is Advanced Energy?

2.7 million
jobs nationwide

\$200 billion
industry revenue nationwide

New technologies and business models are fundamentally changing the way we make, manage, and use energy. We call these technologies “advanced energy,” and they are driving our economy toward a prosperous future powered by secure, clean, reliable, and affordable energy.

ADVANCED ENERGY SEGMENTS



Advanced Electricity
Generation



Energy Efficiency



Advanced Grid



Advanced
Transportation



Advanced Fuels

Advanced Electricity Generation is the second largest advanced energy job segment in Indiana.

The over 4,500 workers employed in this segment are more evenly spread among technology types than in other states with large advanced energy economies, which tend to be dominated by one particular generation technology. Solar is the largest employer in this segment (40%), followed by wind (34%), biomass (12%), traditional hydroelectric (7%), nuclear (6%), and advanced natural gas (1%). The absence of employment in combined heat and power (CHP), fuel cells, advanced hydroelectric, geothermal, and other advanced generation technologies—in addition to untapped potential in technologies already creating jobs in Indiana—indicates a significant opportunity for employment growth in the Advanced Electricity Generation segment.

Nearly 90% of advanced energy firms reported they had some difficulty hiring workers, with one-third reporting they found it very difficult.

The most reported reasons for hiring difficulty included lack of experience, training, or technical skills (46%), and insufficient qualifications, certifications, or education (36%). In terms of value chain activity, the industry is dominated by installation, maintenance, and repair firms, which comprise 65% of advanced energy employment. Most of the customers of these firms are local while their suppliers are from out of state, indicating that there is room for growth in the upstream part of Indiana’s advanced energy economy and workforce. Although predominantly small business, Indiana’s advanced energy economy also has a strong representation of firms with over 100 employees (15%), indicating that the market is strong enough to support larger firms.

The advanced energy workforce in Indiana is more diverse than the population overall.

Although predominantly male (79%), advanced energy workers are 25% racial or ethnic minorities, compared to 20% in the population overall. Veterans make up 10% of Indiana’s advanced energy employees overall, with a higher representation in recent hires (15%). Employees aged 55 and older account for 21% of the state’s advanced energy workforce, yet have a significantly lower representation in new hires at 7%.



INDIANA
ADVANCED ENERGY ECONOMY



Introduction

Indiana is a growing mid-sized state, with over 6.5 million residents.¹ Located in the heart of the American Midwest, Indiana possesses a wealth of energy resources that can support future growth in its nascent advanced energy economy. In particular, there is untapped potential in energy efficiency, wind, biofuels, and biomass. Greater development of these resources can help Indiana improve its electric power and transportation systems and achieve more resource diversity, insulation from fuel price volatility, and improved reliability. It can also bring economic benefits and job growth.

Indiana ranks 16th nationally in population and 12th highest in electricity generation.² Over three quarters of this generation comes from coal power plants, the average age of which is 50 years old.³ Due in part to Hoosiers' relatively high per capita energy consumption—Indiana ranks ninth nationally—the state is a net importer of electricity.⁴ In 2014, the state produced more than 1.1 billion gallons of ethanol, demonstrating Indiana farms' potential to support large scale biofuel operations.⁵

Indiana has affordable electricity prices. At about 9 cents per kWh, the average price of electricity is well below the national average, although it has been steadily rising over the past 10 years.⁶ The state also faces reliability challenges. With 100 power outages affecting nearly 200,000 people, Indiana made it on the top-10 list for most reported power outages in 2015.⁷

Advanced Energy Jobs in Indiana 2016 is the first report to quantify and analyze employment data and trends within Indiana's advanced energy economy.⁸

This report shows that Indiana's advanced energy industry supports an estimated 47,794 jobs. Advanced energy employs twice as many workers in Indiana as colleges and universities, more than machinery manufacturing, and nearly as many as auto parts manufacturing.⁹ One out of every 50 workers in Indiana is employed in advanced energy.

Methodology

The BW Research Energy Employment Index serves as the basis for this report. The Index relies on the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) 2015 Quarter 2, together with a detailed survey of business establishments across the United States. Taken together, the data provides the most comprehensive calculation of energy-related employment available. The methodology used to develop this report is consistent with practices used for local, state, and federal energy-related data collection and analyses for nearly a decade. The Department of Energy recently released its first annual *U.S. Energy and Employment Report*, based on the data from BW Research's Energy Employment Index. The Index has been widely applied, including The Solar Foundation's *National Solar Jobs Census* series, advanced energy reports for a variety of state agencies, trade associations, and nonprofits across the United States.

¹ <http://www.census.gov/popest/data/state/totals/2015/index.html>

² <https://www.eia.gov/electricity/data/state/>

³ EIA 860

⁴ http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_sum/html/sum_bt_u_1.html&sid=US; and <https://www.eia.gov/state/rankings/>

⁵ "Indiana 2014 EIA Reports and Publications," August 21, 2014, accessed August 29, 2016, http://www.eia.gov/state/state_one_pager/Indiana.pdf.

⁶ http://powersuite.aee.net/portal/states/IN/regulatory_commission

⁷ http://images.electricalsector.eaton.com/Web/EatonElectrical/%7Bde3f8139-7d99-4324-9166-22262683e51d%7D_US_BlackoutTracker_2015_Final.pdf

⁸ The data for this report comes from BW Research Energy Employment Index provided to Indiana AEE by AEE Illinois state partner Clean Energy Trust (CET) <http://cleanenergytrust.org/>.

⁹ BLS, Current Employment Statistics State and Area Employment, total nonfarm, Industry figures are from Q2 2015, available at www.bls.gov. Industry definitions are available at http://www.census.gov/eos/www/naics/2012NAICS/2012_Definition_File.pdf.



“I like working for a company at the forefront of energy efficiency that is growing exponentially, yet doesn’t feel huge or impersonal. It’s the best of both worlds. I get access to the resources of a large organization, like market intelligence and marketing automation, and I still get to enjoy the small-agency feel.”

Jennifer Atteberry has worked for CLEARresult for two years, servicing Indiana clients like Indianapolis Power & Light Co. (IPL), Citizens Energy Group, Vectren Energy Delivery of Indiana, Northern Indiana Public Service Co. (NIPSCO) and Indiana Michigan Power.



Her day-to-day responsibilities include developing and implementing marketing strategies to help clients promote their energy efficiency programs. These programs are targeted at the full range of customers, from residential to commercial and industrial. For commercial customers, CLEARresult conducts assessments and suggests ways to reduce energy use through custom projects and direct installation of energy-saving technologies for small business. For residential customers, the company conducts assessments and offers ways to save energy in both single-family and multifamily dwellings.

Prior to joining CLEARresult, Jennifer gained eight years of related-marketing and service experience. She worked her way up at a small ad agency, moving from marketing coordinator to account executive and media buyer and planner. She then transitioned to marketing manager for MCL Restaurant & Bakery where she was responsible for developing and implementing the marketing and social media strategy for 20 restaurant and catering locations across Illinois, Indiana, and Ohio. She earned her Bachelor of Science in Marketing from the University of Indianapolis.

CLEARresult is the largest provider of energy efficiency programs and services in North America, with more than 2,700 employees in the United States and Canada. The company employs 25 people in Indiana.

Jennifer Atteberry
Marketing Account Manager
CLEARresult Consulting
Indianapolis



The Index survey uses a stratified sampling plan that is representative by the North American Industry Classification System (NAICS), firm size, and geography. These data are then analyzed and applied to existing public data published by BLS, effectively constraining the potential universe of energy establishments and employment. BW Research Partnership believes that the methodology used for the Index could be adopted as a supplemental series to the QCEW with only minor revision.

For the purposes of this report, advanced energy employees are defined as workers who spend any of their time on the advanced energy portions of the business.¹⁰ All data in the index rely on the BLS QCEW data for the second quarter of 2015.

The Index survey was administered by telephone (more than 300,000 outbound calls) and by web. The phone survey was conducted by I/H/R Research Group and Castleton Polling Institute. The web instrument was programmed internally and each respondent was required to use a unique ID in order to prevent duplication. More than 50,000 emails were sent to participants throughout the United States. The survey was administered between September 15, 2015 and November 24, 2015 and averaged 14 minutes in length. A total of 357 establishments took the survey and the margin of error at the 95% level of confidence for energy establishments in Indiana is +/- 5.14%.

The sample was split into two categories of participants, referred to as the known and unknown universes. The known universe included establishments that have previously been identified as energy-related, either in prior research or some other manner, such as membership in an industry association or participation in government programs. These establishments were surveyed census style, and their associated establishment and employment totals were removed from the unknown universe for both sampling and resulting employment calculations and estimates.

The unknown universe included hundreds of thousands of businesses in potentially energy-related NAICS codes, across industries, including agriculture, mining, utilities, construction, manufacturing, wholesale trade, professional services, and repair and maintenance. Each of these segments and their total reported establishments (within the BLS QCEW) were carefully analyzed by state to develop representative clusters

for sampling. In total, approximately 20,000 business establishments participated in the survey, with more than 8,500 providing full responses. These responses were used to develop incidence rates among industries (by state) as well as to apportion employment across various industry categories in ways currently not provided by state and federal labor market information agencies.

For several industries, particularly transportation of goods, the Energy Employment Index utilized the methodology developed by the DOE and the National Renewable Energy Laboratory (NREL) for the Quadrennial Energy Review (QER). This methodology applies commodity flow data at the state level to employment within each transportation segment, including rail, air, truck, and water transport. It is important to note that the Energy Employment Index expressly excludes any employment in retail trade NAICS codes, such as gasoline stations, fuel dealers, appliance and hardware stores and other retail establishments.

In total, the BW Research Energy Employment Index represents a rigorous methodology, using mixes of available data and specific knowledge uncommon in more traditional employment surveys.



¹⁰ This threshold may differ from other reports that rely on the same BW Research Energy Employment Index data. For example, The Solar Foundation's *National Solar Jobs Census* counts only those who spend the majority of time on solar work.



Solar farm at Indianapolis International Airport

Industry Overview

With nearly 48,000 workers in 2015, advanced energy is a major employer in Indiana, with twice as many workers as colleges and universities, more than machinery manufacturing, and nearly as many as car parts manufacturing.¹¹ (Figure 1.1)

Major Industry Comparisons, 2015

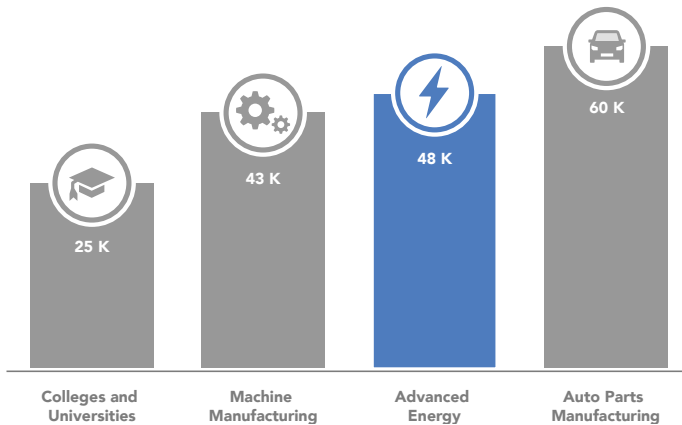


Figure 1.1

One out of every 50 workers, or 2% of the workforce, in Indiana is employed in the advanced energy industry. Employers expect to add over 900 new advanced energy jobs by the end of 2016—an increase of 2%. (Figure 1.2)

Advanced Energy Employment, 2015 - 2016

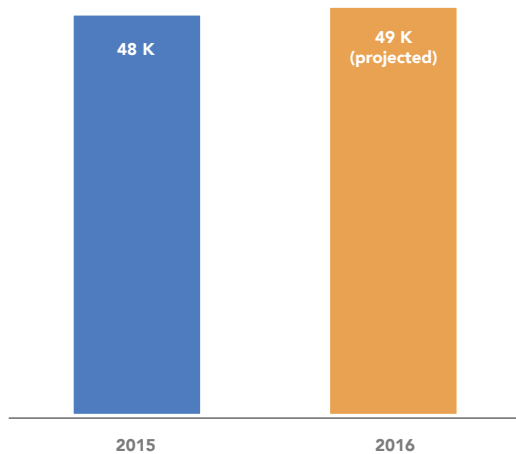


Figure 1.2

¹¹ BLS, Current Employment Statistics State and Area Employment, total nonfarm, Industry figures are from Q2 2015, available at www.bls.gov. Industry definitions are available at http://www.census.gov/eos/www/naics/2012NAICS/2012_Definition_File.pdf.

ADVANCED ENERGY JOBS IN INDIANA

36,668

Energy Efficiency workers

4,501

Advanced Electricity
Generation workers

3,210

Advanced Transportation workers

3,334

Advanced Fuel workers

82

Advanced Grid workers



“I really like knowing that what I am doing will benefit our future generations, especially my kids. Wind energy is a clean, sustainable source of energy that will never go away. I believe renewable energy will make an even bigger impact in the years to come, benefitting all.”



As facility manager of the Amazon Wind Farm Fowler Ridge in Benton County, Ryan Logan is responsible for managing daily operations, including regular inspection, maintenance, and repairs. In this role, he oversees nine full-time employees and all operations for the 150 MW wind facility, including high-voltage energy equipment, surrounding grounds, and roads. He also works with landowners and local leaders to support initiatives that benefit the local community.

Ryan has worked in the wind energy industry since 1998, making his start first in Tracy, California. He has worked with some of the original wind turbine technologies from Denmark, as well as the latest technologies today. He joined Pattern Energy in May 2015 when construction began on the Amazon Wind Farm, Fowler Ridge.

In addition to nearly two decades of hands-on experience with different turbine platforms, Ryan studied electronics at San Joaquin Delta College and completed training in high-voltage equipment specific to substation fundamentals and relaying.

Pattern Energy Group, Inc. (Pattern Energy) is an independent power company listed on the NASDAQ Global Select Market and Toronto Stock Exchange with a portfolio of wind power facilities in the United States, Canada, and Chile. Pattern Energy grows its business through acquisitions, including from Pattern Development, a leading developer of renewable energy and transmission assets. Pattern Energy and Pattern Development employ more than 350 people worldwide, with 265 in the United States.

Ryan A. Logan
Facility Manager
Pattern Energy
Amazon Wind Farm, Fowler Ridge
Fowler, Benton County



Advanced Energy Employment by Segment

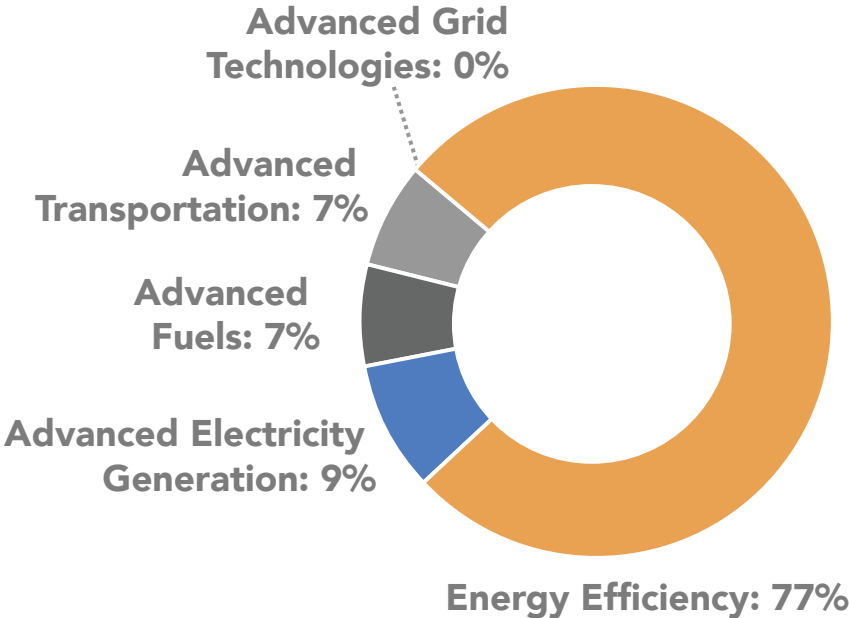


Figure 1.3



Alan West's path to Vestas and the wind industry began when he was in the U.S. Navy, where he spent four years working as a gas turbine mechanic – experience that later translated to wind turbines.

“I love working for Vestas and the wind industry because of our exciting future. Wind is only going to continue to expand throughout the U.S. in the coming years. I'm proud to be part of a company that is extremely safety oriented and puts a high priority on my future as an employee, and on the future of renewable energy.”

Alan started with Vestas in September 2010 as a service technician at the Meadow Lake facility, and has since been promoted to site manager, leading a crew of 10 technicians that performs all the preventive and corrective maintenance on 121 V82 Vestas turbines.

Safety is the top priority on every job completed at Vestas, and Alan and his team are always looking to improve this safety culture. He enjoys belonging to an organization that is positively affecting the world, while also putting a high priority on its employees' futures.

Vestas is the world leader in wind energy, with over 76 GW of cumulative installed capacity worldwide – 50% more than anyone else in the industry. Vestas employs over 21,000 people globally in the manufacturing and operations of wind turbines.

Alan West
Site Manager
Vestas
Meadow Lake Wind Farm
Chalmers



Segment-by-Segment Results

Advanced Electricity Generation

Advanced Electricity Generation employs an estimated 4,501 workers, making it the second largest advanced energy employment segment in Indiana. Accounting for about one in 10 advanced energy workers in the state, Advanced Electricity Generation plays an important role in Indiana's overall advanced energy economy.

Solar and wind generation account for most of the jobs in this segment, employing 1,792 (40%) workers and 1,521 (34%)

workers, respectively. The state's next largest employment center within this segment is biomass, which employs 538 workers (12%). Other employment sub-segments of note are traditional hydroelectric (7%), nuclear (6%), and advanced natural gas (1%). Combined heat and power, fuel cells, advanced hydroelectric, geothermal, and other advanced generation technologies have yet to establish any employment opportunities in Indiana. (Figure 2.1)



Advanced Electricity Generation by Technology

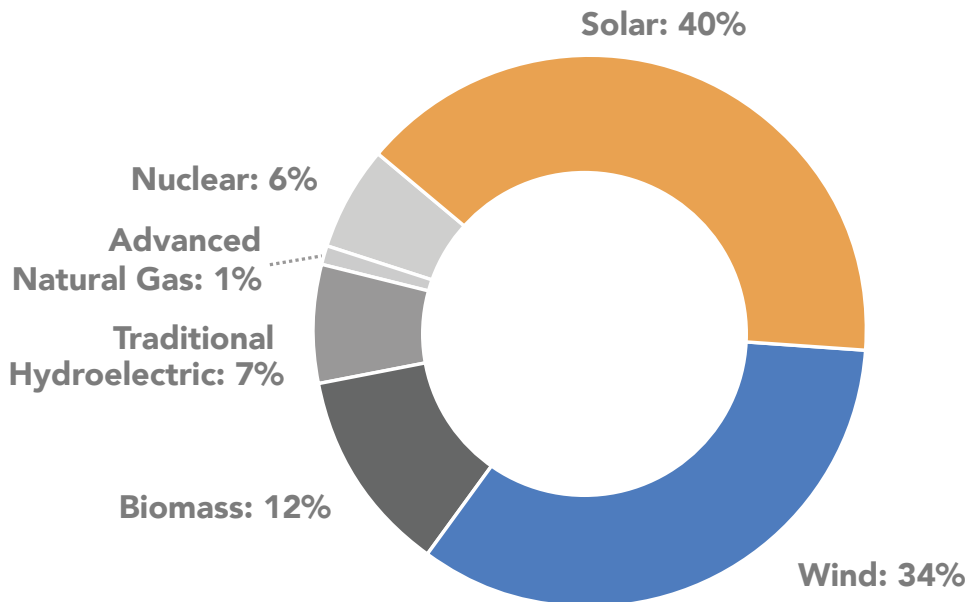


Figure 2.1

“I’ve enjoyed helping the utility industry evolve from old-fashioned mechanical meters to modern, solid-state smart meters and I’m excited to be a part of developing the next generation of products and solutions that help utilities and their customers manage energy better.”



As the Vice President for Hardware Research and Development at Landis+Gyr, Steven Schamber has developed products and solutions for electric utilities since 1987. As the industry has shifted from mechanical to smart metering systems, Steve oversees a new generation of products, such as load control switches, point of use metering, electrical vehicle chargers, and renewable integration devices—all designed to push intelligence to the grid edge, expanding utilities’ capabilities to improve the performance and reliability of their systems.

A 40-year resident of Indiana, Steve serves as site leader for Landis+Gyr’s Lafayette facility. He is a 1985 graduate of Purdue University with a bachelor’s degree in electrical engineering. Steve has been involved in numerous industry standards organizations, such as UL, ANSI, NEMA, and Measurement Canada, helping define the technical blueprints for the smart grid of the future.

Landis+Gyr is leading global provider of metering, hardware, software, and communications for electric, gas, and water utilities. Landis+Gyr’s solutions enable utilities and end-users to manage energy better, make better use of scarce resources, save operating costs, and protect the environment. In Indiana, Landis+Gyr has had a presence for over 100 years in Lafayette, which has developed into a major engineering, customer service, and product management hub for the company, serving utility customers in Indiana and across North America.

Steve Schamber
Vice President for Hardware R&D
Landis+Gyr
Lafayette



Energy Efficiency Employment by Technology

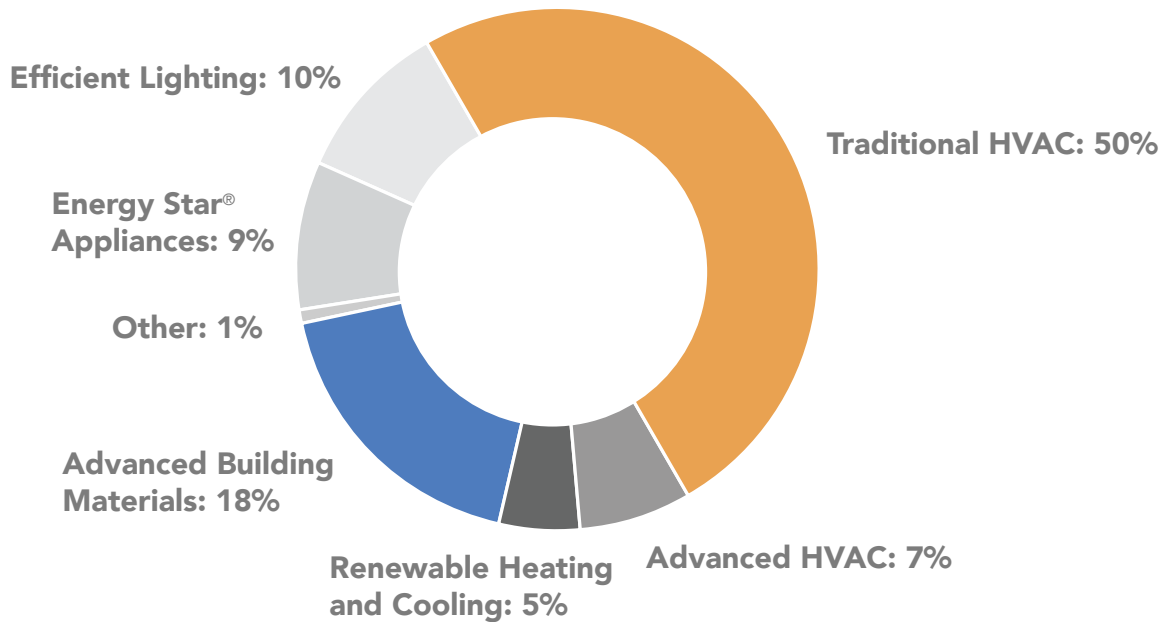


Figure 2.2

Energy Efficiency

Employing an estimated 36,668 workers in 2015, Energy Efficiency is the largest employment segment in Indiana’s advanced energy economy, and accounts for 77% of the state’s nearly 48,000 advanced energy workers. Of these workers, over 92% spend most of their time on energy efficiency-related work and 62% spend all of their time on such work, indicating that not only is Energy Efficiency a well-established employer, but there is enough work to occupy most or all of these workers’ time. Traditional HVAC – meaning employees work with

some advanced HVAC, but spend more than half their time on conventional HVAC equipment – provides the most jobs in the segment and accounts for over 18,000 workers, or half of the segment’s workforce. Advanced Building Materials and Insulation is the second largest sub-segment, accounting for 18% of the state’s energy efficiency workforce; followed by Efficient Lighting at 10%, Energy Star® appliances at 9%, Advanced HVAC at 7%, and Renewable Heating and Cooling at 5%. Over 440 workers (1%) are employed in other sub-segments. (Figure 2.2)



Advanced Fuels

Employing an estimated 3,334 workers in 2015, the Advanced Fuels segment represents 7% of all employment in Indiana's advanced energy economy. Advanced Fuels in Indiana is comprised of two sub-segments: corn ethanol and other ethanol/non-woody biomass. The corn ethanol sub-sector employs nine out of 10 Advanced Fuels workers in the state, while other ethanol/non-woody biomass employs the remaining 10%. (Figure 2.3) The woody biomass sub-segment did not support any employment in Indiana last year.



Advanced Fuel Employment by Technology

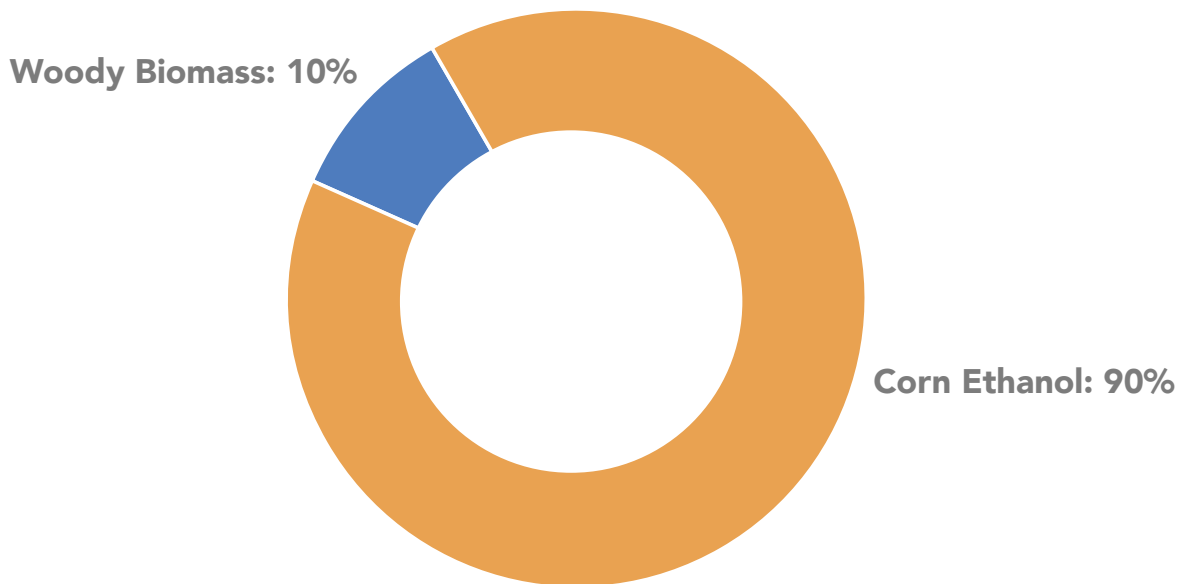


Figure 2.3

Advanced Transportation Employment by Technology

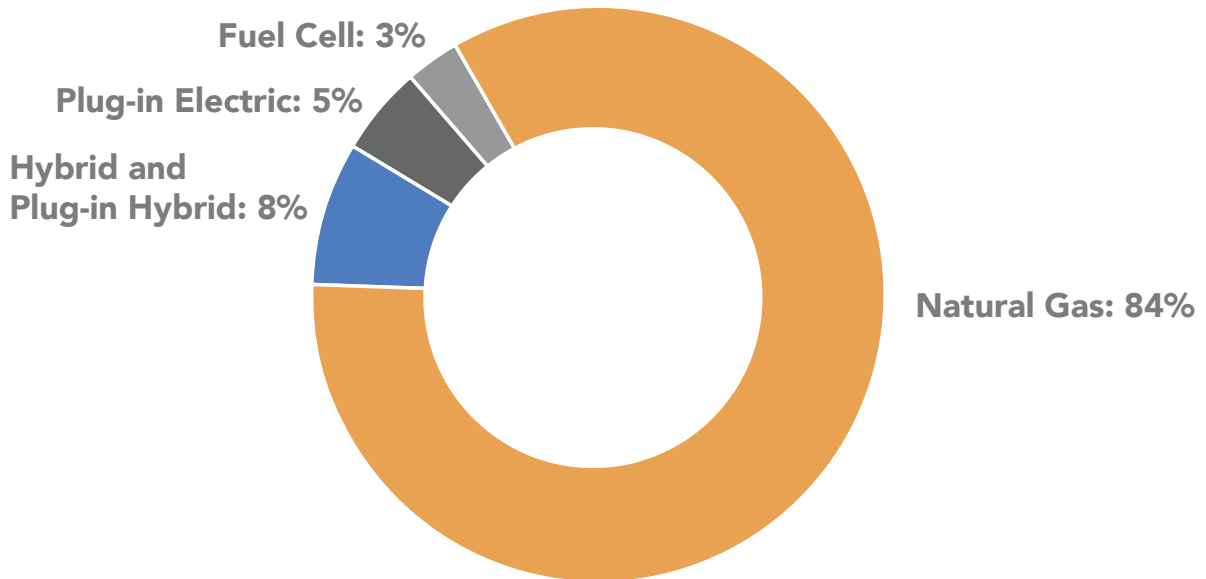


Figure 2.4

Advanced Transportation

As the fourth largest employer, Advanced Transportation closely follows Advanced Fuels employment in Indiana. Advanced Transportation employed an estimated 3,210 workers in 2015, or approximately 7% of the state's advanced energy economy. Like the Advanced Fuels segment, Advanced Transportation employment is largely comprised of one sub-segment. Natural Gas Vehicles account for nearly 85% of Advanced Transportation jobs, while the remaining workers are split among three sub-segments: Hybrid and Plug-in Hybrid electric Vehicles (8%), Plug-in Electric Vehicles (5%), and Fuel Cell and Hydrogen vehicles (3%). (Figure 2.4)



Advanced Grid Employment by Technology

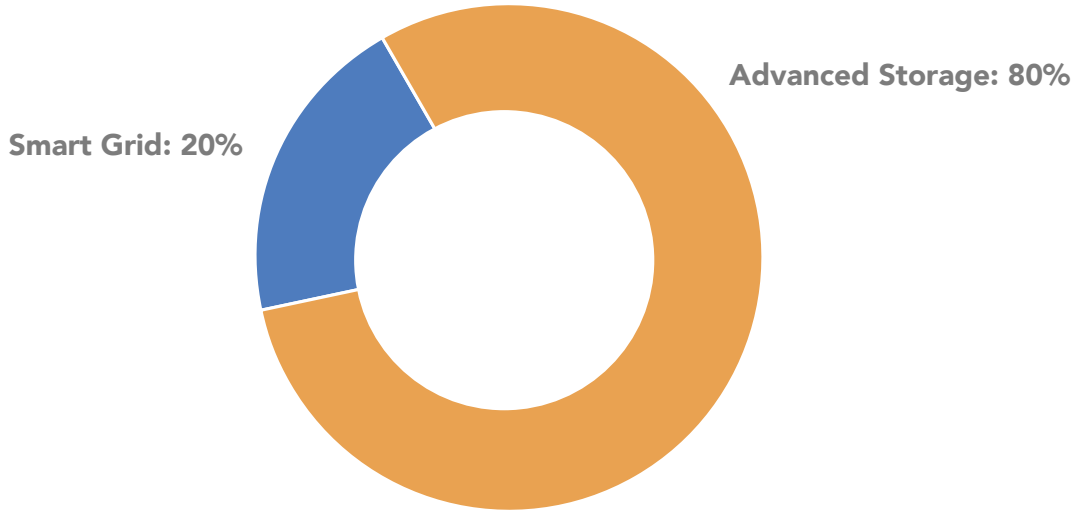


Figure 2.5



Advanced Grid

Indiana has a very small Advanced Grid segment, consisting of an estimated 82 workers in 2015. This segment, which includes Energy Storage, Smart Grid, and Electric Vehicle Charging Infrastructure, will likely grow as more advanced energy technologies are deployed. Storage, for example, provides ancillary services but can also be deployed as a partner to variable renewable generation. In Indiana, 80% of Advanced Grid workers are employed in Storage and 20% work on Smart Grid. (Figure 2.5)

Market Composition

Workforce

The advanced energy workforce in Indiana is fairly diverse. Although predominantly male (79%), advanced energy workers are 25% racial or ethnic minorities, compared to 20% in the population overall.¹² However, the share of recent hires (within the 12 months prior to survey) from racial or ethnic minorities is noticeably lower at 19%. Among new hires, women make up a slightly smaller share (20%) than overall (21%). Veterans make up 10% of Indiana's advanced energy employees overall, with a larger representation in recent hires (15%). Employees aged 55 and older account for 21% of the state's advanced energy workforce, but make up only 7% of new hires.

Value Chain Activity

Indiana's advanced energy industry is dominated by installation, maintenance, and repair firms, which account for 65% of advanced energy employment. The remaining 35% of workers in the advanced energy industries are split between four other value chain activities: trade, distribution, and transport (13%); engineering, research, and professional service (10%); manufacturing (7%); and other (5%). (Figure 3.1)

Advanced Energy Employment by Value Chain

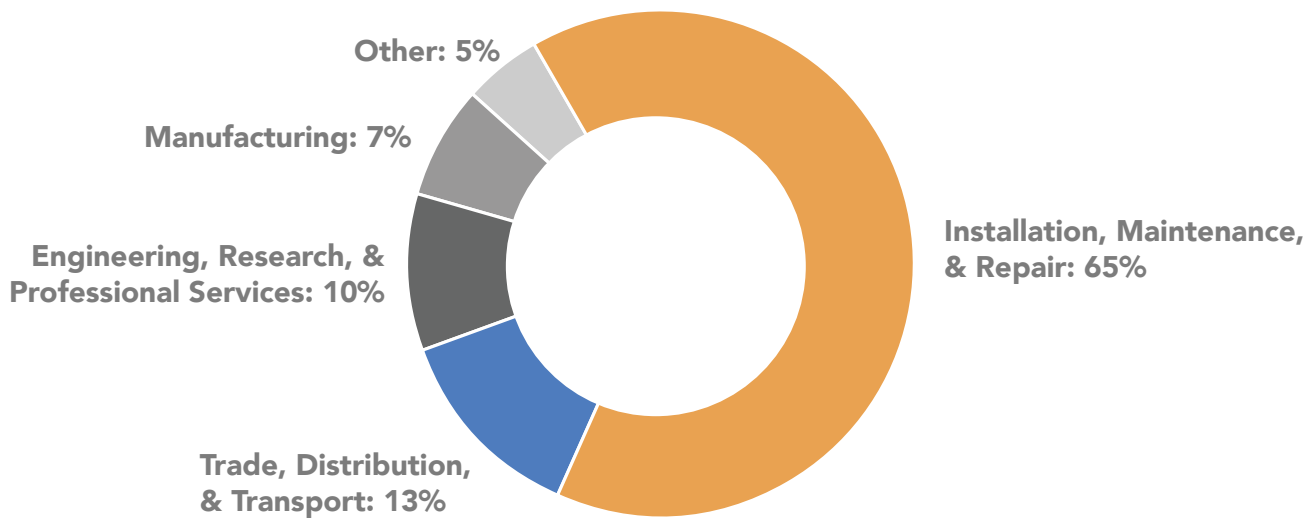


Figure 3.1

¹² <http://www.census.gov/quickfacts/table/PST045215/18,00>



Firm Size

Although predominantly made up of small businesses (62% employing 10 workers or less), Indiana’s advanced energy economy shows a healthy presence of firms with more than 100 employees (15%). This indicates that the advanced energy industry is strong enough to support larger firms. Roughly 25% of advanced energy firms had more than 50 employees. (Figure 3.2) Over 10% of the firms represented had between 11 and 49 employees, while 11% had between 50 and 99 employees. The third-largest class of firms is large- to medium-sized firms with 100-249 employees (13%). Just 2% of the firms had over 500 employees.

Advanced Energy Employment by Firm Size

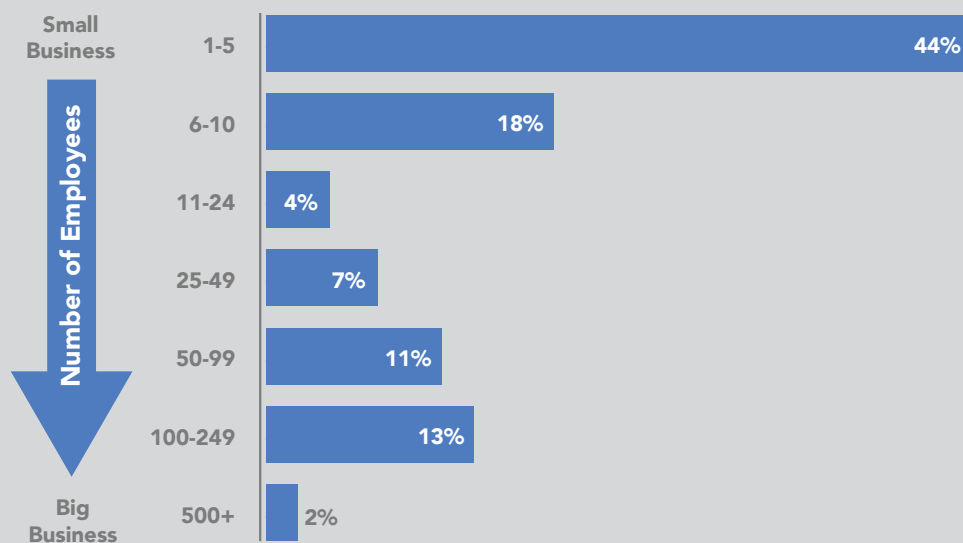


Figure 3.2

Hiring Difficulty

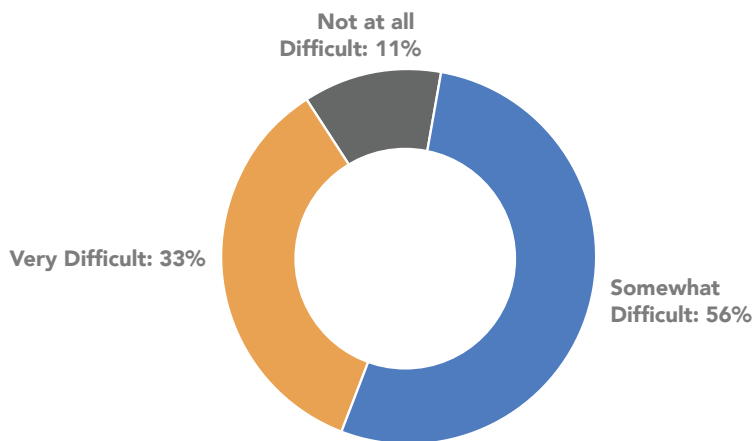


Figure 3.3

Employer Hiring Experience

The majority of firms reported difficulty with hiring over the prior 12 months. (Figure 3.3) Nearly 90% of firms reported difficulty finding qualified workers in 2015; one-third of employers reported that hiring was “very difficult,” and 56% called it “somewhat difficult.” The most reported reasons for hiring difficulty include lack of experience, training, or technical skills (46%), insufficient qualifications, certifications, or education (36%), lack of soft skills (work ethic, dependability, critical thinking) (27%), and difficulty finding industry-specific knowledge and skills (23%). Positions that were most difficult to fill were engineers (25%) and electrician and construction workers (25%). Only one in 10 firms (11%) experienced no difficulty at all in 2015 hiring.

Customer and Vendors

Indiana's advanced energy economy is mostly supported locally, but is supplied mostly from out of state. Over half of firms reported that their customers are primarily local, while only 5% said that they serve primarily international clients. (Figure 3.4) However, less than half of surveyed firms reported that their vendors and suppliers are primarily local, indicating room for growth in the upstream part of the advanced energy economy.

Advanced energy vendors and suppliers include firms that manufacture components of advanced energy technologies such as blades for wind turbines. Indiana could do more to attract companies like these—which are already flocking to some of its Midwestern neighbors—and bolster employment in this part of the industry, while also ensuring that money being spent on advanced energy investment remains in the state.

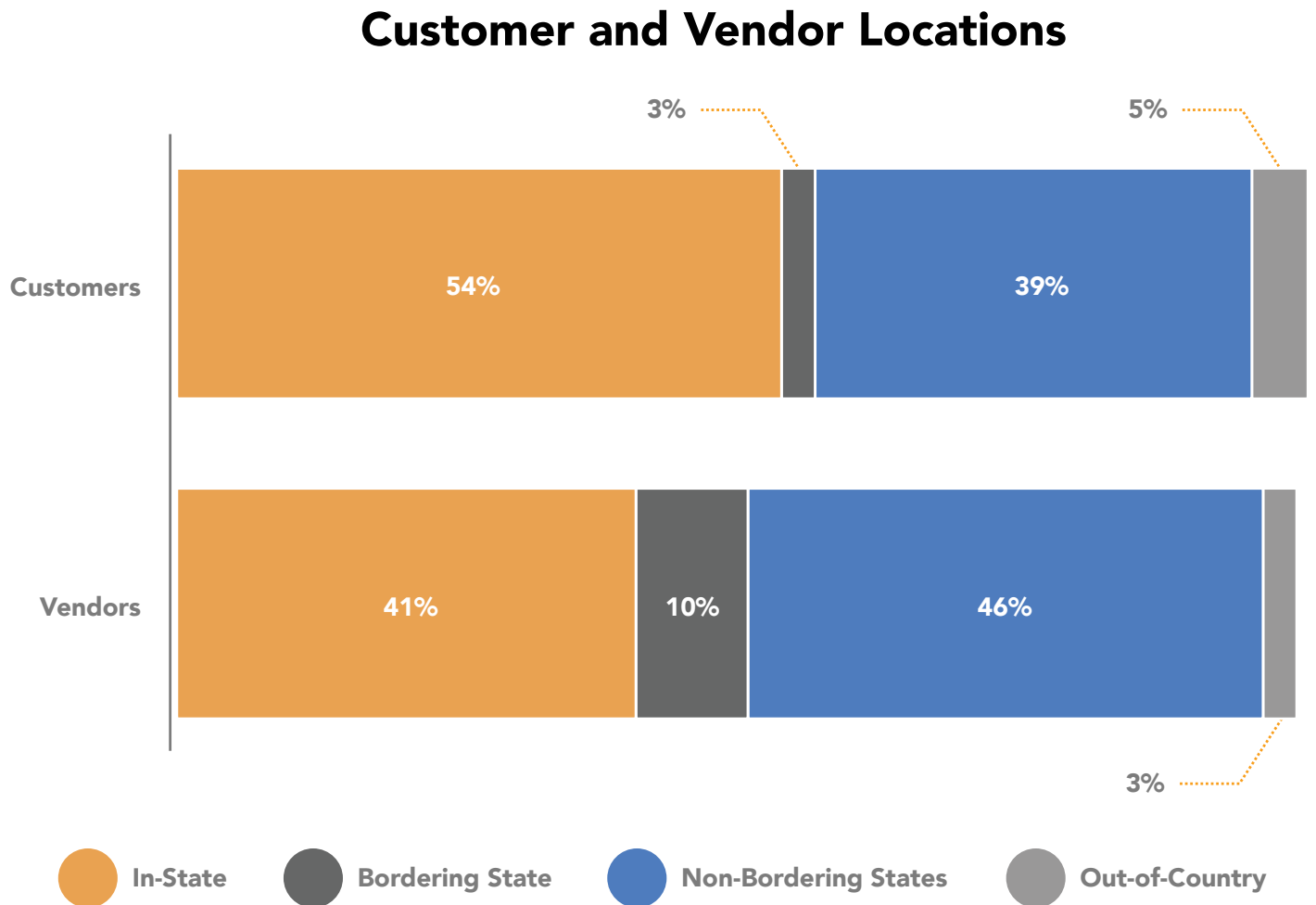


Figure 3.4

Revenue Streams

Nearly two-thirds of advanced energy firms derive most or all of their revenue from advanced energy activities. This means that advanced energy in Indiana provides sufficient revenue to support firms that mainly specialize in these goods and services. Four in 10 employers derive all of their revenue from advanced energy activities, while just over a quarter (26%) report that half to most of their revenue is attributed to advanced energy work. (Figure 3.5)



Percent of Revenue Attributed to Advanced Energy Activity

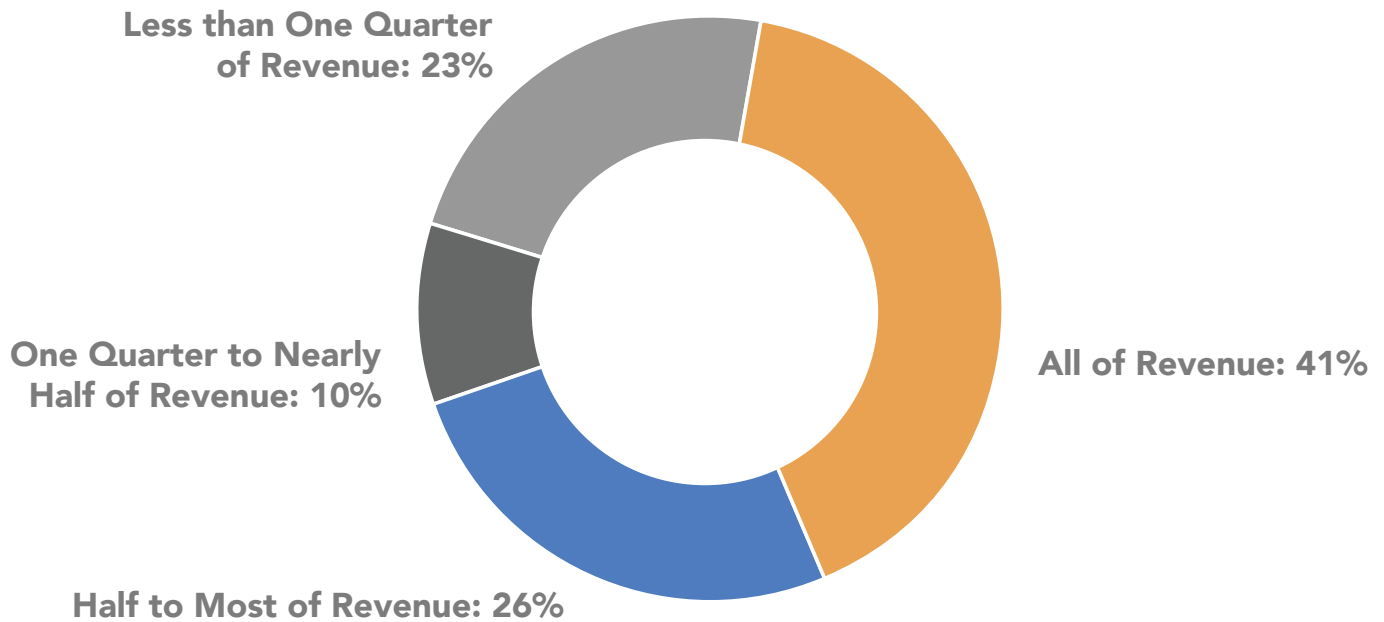


Figure3.5

Conclusion

The first analysis of employment in Indiana's advanced energy economy reveals a sizeable industry with great potential for continued economic and employment growth. Advanced energy employs nearly 48,000 workers in Indiana, nearly twice as many as colleges and universities, more than machinery manufacturing, and approaching auto parts manufacturing.¹³ One out of every 50 workers in Indiana is employed in the advanced energy industry. Employers are optimistic about the future, expecting to add over 900 new jobs by the end of 2016—an increase of 2%. But employers also report difficulty in finding the workers they need to fill advanced energy jobs.

This report also shows that energy efficiency is the state's largest advanced energy employment segment, a larger share of energy efficiency workers than is typical nationally. Employment in Advanced Electricity Generation, the second largest sub-segment, is more evenly spread among technologies than in other states, but none of these technologies has been developed to its full potential in Indiana. Policies to create more market opportunity across the full range of advanced energy technologies and services could accelerate the growth of Indiana's advanced energy economy, and the jobs that come with it.

The survey also indicates that, while advanced energy businesses are well supported by local demand, there is an opportunity for the state to develop its upstream value chain.

One finding that is a cause of concern is the difficulty that advanced energy firms are having in hiring employees. Nearly 90% of firms reported difficulty finding qualified workers in 2015 and 33% of employers reported that hiring was "very difficult." This suggests potential for faster job growth with additional attention to workforce development.

Advanced Energy Jobs in Indiana 2016, is the first report on employment in the advanced energy industry for the Hoosier state. It shows that the advanced energy industry is established in the state, but with plenty of room for growth, contributing to a future of prosperity in Indiana.

¹³ BLS, Current Employment Statistics State and Area Employment, total BLS, Current Employment Statistics State and Area Employment, total nonfarm, Industry figures are from Q2 2015, available at www.bls.gov. Industry definitions are available at http://www.census.gov/eos/www/naics/2012NAICS/2012_Definition_File.pdf.



Advanced Energy is Poised for Growth

47,794
jobs last year

48,715
jobs by the end of 2016

921
new jobs this year



Indiana Advanced Energy Economy (Indiana AEE) is a business organization that includes local and national advanced energy companies seeking to make Indiana's energy system more secure, clean, and affordable. Indiana AEE's mission is to transform public policy to enable rapid growth of advanced energy companies. Indiana AEE promotes the interest of its members through legislative and regulatory policy advocacy, convening groups of CEOs to identify and address cross-industry issues, and by raising awareness among policymakers and the general public about the opportunity offered by all forms of advanced energy for cost savings, electric system reliability and resiliency, and economic growth in the Hoosier state.