

The 2019 U.S. Energy & Employment Report

EXECUTIVE SUMMARY

A JOINT PROJECT OF NASEO & EFI



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About

This work was prepared under a Memorandum of Understanding between the Energy Futures Initiative (EFI) and the National Association of State Energy Officials (NASEO) and a contract between EFI and BW Research Partnership. The survey instrument and underlying methodology is identical to that used in the primary data collected on behalf of the U.S. Department of Energy (OMB Control No. 1910-5179) for the 2017 U.S. Energy and Employment Report and secondary data from the United States Department of Labor's Quarterly Census of Employment and Wages for the second quarter of 2018. Neither EFI nor NASEO, nor any of their employees, nor any of their contractors, subcontractors, or their employees makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

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Additional Analysis + Reports

The USEER data base includes detailed data for the 53 separate technologies that comprise the five surveyed sectors. Each of these technologies is, in turn, divided into as many as seven industrial classifications. As a result, the USEER data base can provide an in-depth view of the hiring difficulty, in-demand occupations, and demographic composition of very specific portions of the energy and energy efficiency workforce in each state or in specific counties and, in some cases, portions of counties. In addition, the USEER data base can provide year-to-year comparisons in specific sectors, technologies, and industrial classifications at the state and county level. For information about additional analysis and reports, please contact:

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Preface

EFL, a nonprofit think tank based in Washington, D.C., and NASEO, a nonprofit association representing the 56 energy offices of the states, territories, and District of Columbia, are pleased to release the 2019 USEER to provide a consistent tool for states, trade associations, labor unions, and other stakeholders to track changes in energy and energy-related employment during a time of continued change in energy markets.

For many NASEO members, economic development and job creation provide the underpinning for their energy planning and policy development initiatives. Now in its fourth year of publication, the USEER offers a powerful tool for state policymakers to understand the impact of evolving energy markets; to help prepare their communities, infrastructure, and workforce for these changes; and to harness the economic and environmental benefits that result.

The U.S. Energy and Employment Report (USEER) was published in 2016 and 2017 by the U.S. Department of Energy (DOE) upon recommendation of the 2015 first installment of the Quadrennial Energy Review (QER), “to reform existing data collection systems to provide consistent and complete definitions and quantification of energy jobs across all sectors of the economy.”¹ Previous editions of the USEER had addressed several gaps in energy employment data, including the following:

- business activities essential to the operation of traditional energy companies and utilities, including coal, natural gas, nuclear, and others, classified by the North American Industry Classification System (NAICS) within the business activities of other sectors
- jobs associated with the production of renewable energy such as wind, solar, and geothermal power
- jobs associated with energy efficiency

DOE elected to not undertake a similar report for 2018 or 2019.

¹ U.S. Department of Energy [DOE], *Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure* (Washington, D.C., 2015), 8-10.
https://www.energy.gov/sites/prod/files/2015/07/f24/QER%20Full%20Report_TS%26D%20April%202015_0.pdf.

The 2018 and 2019 USEERs have been organized and implemented by the Energy Futures Initiative (EFI) and the National Association of State Energy Officials (NASEO) to provide continuity with the previous editions of the USEER in data collection and accuracy in year-to-year comparisons.

Accordingly, the 2019 USEER relies on the identical survey instrument developed by the DOE and approved by the Office of Management and Budget (OMB Control No. 1910-5179) for the 2017 USEER with the following additions:

- differentiation of jobs in oil and gas pipeline construction
- expansion of energy storage technologies
- an energy and energy efficiency jobs wage data survey to be published as a separate report

The data collection for the 2019 USEER was timed to ensure meaningful year-to-year comparisons with previous reports. In addition, the following organizational changes were made:

- separate chapters for Fuels and Electric Power Generation to provide greater detail on each subtechnology in these sectors
- new crosscuts on the oil, gas, coal, nuclear, and energy storage industries to provide data on their entire value chains

It is our hope that the 2019 USEER and future editions will be used to better inform federal, state, and local policymakers; academic decision-makers; and the private sector in developing integrated energy, security, economic development, and workforce plans. This kind of integration is key to maximizing the benefits of the nation's abundant energy resources, rapid pace of energy innovation, and dynamic energy markets. We further hope that the data presented in these and future reports will help advance the understanding of the economics of emerging energy industries. Creating a single and consistent measure of employment across the entire U.S. energy system is critical to that understanding.



Summary



Key Findings

The 2019 USEER analyzes the following five sectors of the U.S. economy:

- Fuels;
- Electric Power Generation;
- Transmission, Distribution and Storage;
- Energy Efficiency; and
- Motor Vehicles.

The first three of these sectors make up the Traditional Energy sector.

Based on a comprehensive analysis of employer data collected in the fourth quarter of 2018, the 2019 USEER finds that the Traditional Energy and Energy Efficiency sectors in 2018 employed approximately 6.7 million Americans or 4.6 percent of a workforce of roughly 147 million. Employment in these sectors increased in 2018 by 2.3 percent from the previous year, adding 151,700 net new jobs, nearly 7 percent of all new jobs nationwide.²

The Fuels sector employed 1,127,600, an increase of 52,000 or 4.8 percent in 2018.

- Petroleum fuels added the most jobs of any traditional energy sector, with 33,500 new positions, an increase of 5.9 percent.
- Natural gas extraction increased employment by 6.8 percent, adding 17,000 jobs.
- Coal mining and fuels production gained 650 jobs or 0.9 percent.
- Woody biomass jumped 5.5 percent, adding more than 1,700 jobs.

The Electric Power Generation sector employed 875,600 and declined by just under one percent, losing almost 8,300 jobs. Job losses in solar, nuclear and coal generation were partially offset by gains in natural gas, wind, and CHP.

² Due to differing time frames for the USEER report, the reports on employment in 2015, 2017, and 2018 reference BLS second quarter employment data, whereas the report on 2016 report uses BLS first quarter employment data. Energy employment growth in the period between the second quarter of 2017 and the second quarter of 2018 represented 7 percent of all employment growth in the United States. Unless otherwise stated, all increases or decreases described in this report for 2018 (whether whole numbers or percentages) are relative to 2017.

- Solar energy firms employed 242,000 employees who spent the majority of their time on solar.³ An additional 93,000 employees spent less than half their time on solar-related work. The number of employees who spend the majority of their time on solar declined by 3.2 percent or more than 8,000 jobs in 2018.
- There were an additional 111,000 workers employed at wind energy firms across the nation in 2018, an increase of 3.5 percent or 3,700 jobs.
- All natural gas employment in Electric Power Generation increased by over 5,200 (4.9 percent), for almost 113,000 jobs, reflecting that gas now produces more electricity in the United States than any other fuel type.⁴
- Advanced/low emissions natural gas, wind, and CHP generation were the fastest growing new sources, increasing employment by more than 4,500 (7.0 percent), 3,700 (3.5 percent), and 2,000 (7.4 percent), respectively.
- Coal-fired generation employment declined by more than 6,600 jobs, or 7.2 percent.

Transmission, Distribution, and Storage (TDS) employed more than 2.3 million Americans, with just over 1 million working in retail trade (gasoline stations and fuel dealers). Excluding retail trade, this represents an increase of 33,000 new jobs or 2.6 percent.

- Utilities and construction were the two strongest industry sectors in Transmission, Distribution, and Storage, adding over 30,000 new jobs in 2018.
- Battery storage added over 9,500 new jobs for an 18% growth rate in 2018.
- Overall, 48 percent of respondent employers working in this sector reported that a majority of their revenues come from grid modernization or other utility-funded modernization projects, an increase of 10 percentage points over 2017.

Energy Efficiency employed 2.35 million Americans, in whole or in part, in the design, installation, and manufacture of Energy Efficiency products and services, adding 76,000 net jobs in 2018 (3.4 percent), an increase over the 67,000 jobs added in 2017.⁵

- Almost 1.3 million Energy Efficiency jobs are in the construction industry, a 1.6 percent increase, or almost 21,000, from 2017.
- 79 percent of employees who work on Energy Efficiency in the construction sector report spending at least half their time on Energy Efficiency-related work, virtually unchanged from the number reported

³ The Solar Foundation 2018 *National Solar Jobs Census*/BW Research Partnership

⁴ Text, charts, and tables in the 2019 report include revised 2017 employment totals for advanced and traditional natural gas generation based on additional available data from the Energy Information Administration.

⁵ Energy Efficiency jobs are defined on Page 131.

last year (1.024 million) up from 797,500 in 2015 and 1.017 million in 2016.

- Energy Efficiency professional services added 35,000 jobs, an increase of 7.7 percent. Wholesale trade jobs in Energy Efficiency also expanded by 7.7 percent, adding almost 13,000 positions.
- Manufacturing jobs, producing ENERGY STAR® certified products and energy efficient building materials in the United States, increased by 6,000 jobs or 2 percent.

Motor Vehicles (including component parts) employed over 2.53 million workers, excluding automobile dealerships and retailers, adding 74,000 jobs in 2018, an increase of 3 percent.

- In 2018, almost 254,000 employees worked with alternative fuels vehicles, including natural gas, hybrids, plug-in hybrids, all-electric, and fuel cell/hydrogen vehicles, an increase of nearly 34,000 jobs.
- Hybrids, plug-in hybrids, and all-electric vehicles made up over 90 percent of this number, supporting 231,000 employees. The number of jobs supported by hydrogen or fuel cell vehicles declined, while jobs in all other alternative vehicle technologies increased.
- Over 486,000 employees of Motor Vehicles component parts companies are now contributing to more fuel-efficient vehicles, an increase of approximately 10,000 from 2017.
- More than one-fifth (22 percent) of all firms involved in Motor Vehicle component parts derive all their revenue from products that increase fuel economy for Motor Vehicles, a slight decrease from 2017.

Cross Cuts

The 2019 USEER provides 5 cross cutting analyses that look at the interrelations of jobs across the entire value chain of the natural gas, petroleum, coal and nuclear industries that were previously segregated in the Fuels, Electric Power Generation, and Transmission, Distribution and Storage chapters. In addition, another cross-cutting analysis looks at job comparisons between those Electric Power Generation technologies that consume fuels and those that do not.

The natural gas industry employs 625,369 Americans.

- Utilities employed 176,167.
- Mining and extraction employed 162,928.
- Construction employed 113,339.

The coal industry employs 197,418 Americans.

- Mining and extraction employed 55,905.
- Utilities employed 45,795.
- Wholesale trade employed 43,327.

The petroleum industry employs 799,531 Americans.

- Mining and extraction employs 308,681.
- Wholesale trade and distribution employs 170,945.
- Manufacturing employs 155,267.

The nuclear industry employs 72,146 Americans.

- Utilities employ 46,809.
- Professional services employ 14,374.
- Manufacturing employ 4,913.

In combination, the Electric Power Generation and Fuels sectors directly employed nearly 2 million workers in 2018, up 39,306, more than double the increase the year prior (2 percent).

- In 2018, 59 percent, or 1.2 million, of these employees worked in traditional coal, oil, and natural gas Electric Power Generation and Fuels
- 611,000 employees worked in zero emissions' generation technologies, including renewables and nuclear
- Another 189,000 worked in low-carbon emission technologies, including biofuels and advanced/low emissions gas.

Hiring and Demographics

Overall, firms covered by the survey anticipate roughly 4.6 percent employment growth for 2019.

- Energy Efficiency employers projected the highest growth rate in 2019 (7.8 percent),
- Electric Power Generation (7.1 percent);
- Transmission, Distribution, and Storage (3.2 percent),
- Fuels (3 percent),
- Motor Vehicles (2.2 percent).

Hiring difficulty was highlighted by virtually all sectors as a growing problem. Just under 77 percent of employers across these sectors (76.9 percent) reported difficulty hiring qualified workers over the last 12 months, an increase of nearly 7 percentage points from 2017. Almost three-in-ten employers (29 percent) noted it was very difficult (26 percent in 2017).

- Among construction employers in Energy Efficiency, one of the largest surveyed sectors with over 1.3 million workers, a majority (52%) of employers reported that it was very difficult to hire new employees. This sector also predicted over 8% growth in 2019.
- Lack of experience, training, or technical skills was almost universally cited as the top reason for hiring difficulty by employers across all five

surveyed sectors. The need for technical training and certifications was also frequently cited, implying the need for expanded investments in workforce training and closer coordination between employers and the workforce training system.

Demographically, the surveyed sectors fluctuate above and below national averages.

- Women are a smaller portion of the workforce in these sectors, ranging from 23 percent to 33 percent, compared to the overall economy, where women make up 47 percent of the workforce.
- However, two of these energy sectors—Electric Power Generation and Transmission, Distribution and Storage—are more racially diverse than the national workforce as a whole, at 31% and 30%, compared to the national average of 22%. The other three surveyed sectors—Fuels, Energy Efficiency, and Motor Vehicles—are each at 22%. This is, in part, because of the increased self-identification of employees belonging to “2 or more races.”
- Veterans comprise from eight to 11 percent of these sectors—higher than the national average of 6 percent.
- Between 14 percent and 23 percent of this workforce is 55 years of age or older, compared to the national average of 23 percent; this proportion is significantly lower in Electric Power Generation and Energy Efficiency.
- Unionization rates for TDS, Energy Efficiency, and Motor Vehicles are equivalent to or exceed the national average, while Fuels and Electric Power Generation are below.

Conclusion

The year 2018 marked another year in the evolution of the U.S. energy system, one in which market forces, technology development and maturation, tax policy, and declining federal regulation (countered by increased regulation in some states) affected the changing profile of our energy workforce. In spite of one of the highest levels of employment in recent U.S. history, the traditional energy and energy efficiency sectors continued to outperform the economy as a whole, adding 152,000 new jobs.

Certain long-term trends accelerated, such as the continuing growth of the natural gas electric power generation and wind workforces, as their cost advantage pushed out older coal-fired units. However, the stability in coal EPG seen in 2017 gave way to continued declines with the loss of almost 7,000 jobs. Meanwhile, coal fuel jobs grew slightly, adding 650 jobs.

In the Fuels industry overall, oil and gas production added the most new jobs in the traditional energy sectors as efficiencies and increased prices brought thousands of workers back into the oil and gas fields of Texas, Oklahoma, North

Dakota, and Pennsylvania. Employment in oil and gas extraction and support services is at its highest level since its recent high in the fall of 2014.

Meanwhile, the shift in technologies continued to play out in EPG with solar employment declining for the second year in a row despite adding an additional 11.06 gigawatts of capacity. This decline was concentrated in a handful of states—California, Massachusetts, North Carolina, and Arizona. Other technologies that continued to register growth included CHP and smaller renewables such as geothermal. Nuclear EPG avoided potential closures in Illinois and New York, but employment declined slightly, losing 1500 jobs.

Investments in energy infrastructure continued to grow in 2018 with the number of construction companies reporting a majority of their revenues coming from utility investments increasing with an accompanying dramatic increase in construction jobs. Battery storage jobs experienced another significant increase, signaling the new importance of storage in a grid that relies more on distributed sources of generation.

Energy Efficiency employment continued its steady growth, even in a high employment environment, challenged by the toughest hiring climate found in the USEER survey. Construction firms employ the majority of Energy Efficiency employees and added over 21,000 jobs despite a majority of those employers saying it was very difficult to do so. The professional services sector of Energy Efficiency expanded by 35,000 personnel and now employs almost a half million Americans.

Alternative fuels and hybrid vehicles employment experienced a significant rebound from a year earlier adding 34,000 jobs, driven by release of the Tesla Model 3. However, the discontinuation of the Chevrolet Volt and a 35 percent increase in domestic sales of foreign manufactured alternative fuels vehicles in 2018 provide headwinds for future job growth. Overall, the Motor Vehicle industry had a banner year, increasing employment in 2018 by 74,000 jobs, two and one half times the increase in 2017.

Finally, the 2019 USEER will provide, in a separate report, comprehensive wage data on 79 different occupations throughout the five surveyed sectors. This report, to be issued in the second quarter of 2019 will allow for comparisons of wage and benefit levels by technology and geography throughout the energy, energy efficiency, and motor vehicles sectors.

Methodology

The U.S. Energy and Employment Report is based on a 15-minute, supplemental survey¹⁰ of approximately 30,000 employers that enriches the employment data published by the U.S. Bureau of Labor Statistics (BLS) in its Quarterly Census on Employment and Wages (QCEW). The QCEW is compiled by BLS from data provided by employers, who must report the monthly employment and the quarterly wages for all workers covered by unemployment insurance at either the state or federal level. BLS allocates these employment figures across 1,057 industry subsectors, according to each firm's primary business focus under the North American Industrial Classification System (NAICS). The NAICS system was established in 1997 and is used in the United States, Canada, and Mexico to describe their respective industries and businesses. Examples of major industrial sectors in the NAICS include Mining, Quarrying and Oil and Gas Extraction (NAICS Sector 21); Utilities (NAICS Sector 22); Manufacturing (NAICS Sector 31-33); and Professional, Scientific and Technical Services (NAICS Sector 54).

Each of the major industrial sectors in the NAICS is refined into subsectors and then into 4-digit codes for industry groups (such as Electric Power Generation, Transmission and Distribution – NAICS 2211) and further into 6-digit codes for specific industries (such as Solar Electric Power Generation – NAICS 221114). The QCEW classifies over 96 percent of the American workforce under this system. Among the workers excluded are some agricultural workers and workers who are sole proprietorships. For more information on the QCEW and the NAICS, please refer to their official websites at the U.S. Census Bureau, for NAICS,¹¹ and at the Bureau of Labor Statistics, for the QCEW.¹²

In order to achieve a deeper understanding of employment in any sector of the U.S. workforce, economists and statisticians have made use of supplemental surveys designed to ask specific questions of employers in targeted subsectors of the QCEW data. The USEER survey was created to gather additional data on the employers that are engaged in the energy sector, including the production, transmission, distribution, and consumption of energy in all its many forms. The USEER divides this employment into five sectors: Fuels; Electric Power Generation; Transmission, Distribution, and Storage; Energy Efficiency; and Motor Vehicles.

¹⁰ The supplemental survey is included in Appendix B in this report.

¹¹ NAICS, www.census.gov/eos/www/naics/

¹² QCEW, www.bls.gov/cew/

Employment in each of these five sectors is not assigned to a discrete set of NAICS subsectors. Instead, it is spread across 186 of them, or approximately 18 percent of the total. Some of these subsectors are 100 percent energy-related, while others are only partially composed of energy employment. In addition, in some of these subsectors, employees are spending 100 percent of their time on energy-related work, while in others a given employee may spend 50 percent of his/her time on energy-related tasks and the balance on something entirely different. The USEER supplemental survey provides solutions to these data gaps.

Take, for instance, the example of construction employees who are employed by an outside contractor, but whose work takes place 365 days a year on the location of a nuclear power plant. Under the QCEW, such employees are counted as construction electricians, laborers, and pipefitters – without any specific relationship to the nuclear power plant to whose operations they are essential. Through its survey of the construction industry, the USEER determines how many employees of construction companies are actually involved in the production, transmission, distribution, and efficient use of energy. In this particular case, the USEER reassigns them to the nuclear generating sector. Without the USEER survey, we would not be able to determine that over 1.9 million construction laborers are employed by our country's energy businesses.

As mentioned, the USEER survey is administered annually to approximately 30,000 businesses, according to a stratified random sampling of businesses classified in 186 different NAICS industry codes at the six-digit level. These detailed NAICS codes are subsets of seven two-digit codes for broad industry sectors.

Table 1.

Two-Digit NAICS Codes for Sectors Containing Energy Employment with Examples of Their Component Industry Groups and Specific Industries

	Agriculture	Mining, Quarrying and Oil & Gas Extraction	Utilities	Construction	Manufacturing	Wholesale Trade	Professional Services
NAICS Sector Code	NAICS 11	NAICS 21	NAICS 22	NAICS 23	NAICS 31-33	NAICS 42	NAICS 54
4-Digit Example for Industry Group	1133 Logging	2111 Oil & Gas Extraction	2211 Electric Power Generation, Transmission and Distribution	2371 Utility System Construction	3241 Petroleum and Coal Products Manufacturing	4236 Household Appliances and Electric and Electronic Goods Merchant Wholesalers	5411 Legal Services

6-Digit Example for Specific Industry	111150 Corn Farming	212112 Bituminous Coal Underground Mining	221114 Solar Electric Power Generation	237130 Power and Communica- tion Line and Related Structures Construction	333611 Turbines and Turbine Generator Set Units Manufacturing	424710 Petroleum Bulk Stations and Terminals	541330 Engineering Services
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The survey questions each of these employers about their employment in 53 different energy, energy efficiency, or motor vehicle technologies.

Table 2.

USEER Energy Technologies Included in the Survey Instrument

Electric Power Gen.	Fuels Production	Trans, Dist., Storage	Energy Efficiency	Motor Vehicles
Solar Photovoltaics	Coal	Traditional T & D	Energy Star Applian.	Gasoline & Diesel
Wind	Petroleum	Pumped Hydro	Efficient Lighting	Hybrid Electric
Geothermal	Natural Gas	Battery Storage	Traditional HVAC	Plug-in Hybrid
Bioenergy/Biomass	Other Fossil Fuels	Other Storage	Energy Star HVAC	All Electric
Low Impact Hydro	Corn Ethanol	Smart Grid	Renewable HVAC	Natural Gas
Traditional Hydro	Non-woody Biomass	Micro Grids	Adv. Build. Materials	Hydrogen
Natural Gas	Woody Biomass	Other Modernizing	Recycled Build. Mat.	Fuel Cell
Advanced Gas	Other Biofuels		Reduced water	
Nuclear	Nuclear Fuels			
Coal				
Petroleum/Oil				
CHP				

As the earlier example of the nuclear power and construction industry illustrates, many employees whose jobs are a direct and essential part of the U.S. energy system are not classified as such under the QCEW. This fact is not a shortcoming of the QCEW, simply a data gap that must be addressed to create an accurate picture of the size of the U.S. energy workforce, the employment and skills needs of its employers, and an understanding of its demographic makeup.

The evolution of American business models and the growth of new technologies has also contributed to the complexity of this problem. Vertically integrated companies have given way to specialty companies whose supply chains would once have been owned by a single entity. As a result, the direct employment relationship of such companies is lost.

New technologies frequently lead to new business models. Wind and solar generation are an excellent example, in that few generation projects are built by direct employees of utilities, under which most electric power generation employment is classified in QCEW. Consequently, understanding employment in new technology sectors requires a supplemental survey to understand which of the construction and professional services jobs, for instance, are actually electric power generation jobs.

The two tables below show how the problem of undercounting in these sectors is solved through administration of the USEER supplemental survey. Table 3 shows how different jobs were counted under Electric Power Generation in the 3rd Quarter of 2018 under the QCEW on a national level, as compared to the numbers reported by the 2019 USEER, which surveyed employers in that same quarter to determine how many construction, professional, and wholesale trade employees were actually working on Electric Power Generation but not as Utility employees.

Table 3.
Electric Power Generation Employment
in the QCEW Compared to the USEER.

Fuel Source	QCEW-BLS	2019 USEER
Fossil Fuels	105,296	211,469
Nuclear	46,809	62,987
Wind	6,231	111,166
Solar	3,295	242,343 (93,000)*
CHP	1,673	29,245
Hydro	17,480	66,448
Geothermal	1,116	8,526
Biomass	2,029	12,976

*93,000 additional employees in solar spend less than 50 percent of their time on solar-related tasks.

Table 4. illustrates this same problem at the state level, in this case North Carolina. The state problem is further complicated by federal privacy rules that prohibit the release of data where the number of employers is too few to maintain the confidentiality of their responses. Consequently, the QCEW is unable to report on multiple generation technologies in that state, whereas the USEER reports on all but one. Neither the QCEW nor the USEER had adequate responses for CHP generation at the state level.

Table 4.
North Carolina Electric Power Generation Employment
in the QCEW Compared to the USEER.

Fuel Source	QCEW-BLS	2019 USEER
Fossil Fuels	n/a	5,365
Nuclear	n/a	1,645
Wind	n/a	908
Solar	436	6,719 (2,193)*
CHP	n/a	n/a
Hydro	106	578
Geothermal	n/a	364
Biomass	49	1,531

*Parentheses include additional solar employees who spend less than 50 percent of their time on solar

Survey Content

The survey itself covers many other topics in addition to asking how many of a firm's employees work in one of the 53 technologies. The survey is administered by phone and on-line and asks the following:

- Employment numbers
- Employer hiring expectations for the next 12 months
- Hiring difficulty by technology and industrial classification over the last year
- High demand jobs and skills gaps
- Workforce demographics by race, ethnicity, gender, age, and veteran status
- Geographic location by state, county, congressional and legislative districts, and metropolitan statistical area of each technology and industrial classifications

Sectors

Prior editions of the USEER broke down the energy-related economy into four sectors: Fuels and Electric Power Generation; Transmission, Distribution, and Storage; Energy Efficiency; and Motor Vehicles. The 2019 USEER divides Fuels and Electric Power Generation into separate sectors, each with its own chapter, so this report now discusses the energy-related economy in terms of five sectors. In addition, the 2019 USEER has added several crosscutting sections that examine the relationship between aspects of these sectors and of some of the technologies that cut across several of them. For instance, the 2019 USEER contains a crosscut on the natural gas and oil industries, showing that their workforces take part in the Fuels, Electric Power Generation, and Transmission, Distribution, and Storage sectors. The 2019 USEER also contrasts the jobs in Electric Power Generation sector that require fuels with the jobs in that sector that do not.

As in the past, Energy Efficiency is largely, although not entirely, defined by standards arising from the EPA's ENERGY STAR program. For a more complete definition of Energy Efficiency jobs, see the introduction to the Energy Efficiency chapter.

Finally, the 2019 USEER again includes a chapter on the Motor Vehicle industry. Motor Vehicles consume 28 percent of all energy used in the United States in 2019. Consequently, it is important to continue the examination of how fuel efficiency and new technologies including electrification and fuel cells are affecting employment in that industry.

To read the USEER 2019 Supplemental Survey and for a complete technical discussion of the survey methodology, please see Appendix A and Appendix B, respectively.