



# 2022

## Pennsylvania Energy Employment Report

PRODUCED FOR THE PENNSYLVANIA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION ENERGY PROGRAMS OFFICE

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## Introduction

The 2022 Pennsylvania Energy Employment Report is a follow up to the 2021 report that tracks energy employment across the Commonwealth. This report provides energy employment data from 2017 through 2021 for the major energy technology sectors<sup>1</sup>, their component sub-technologies, as well as key industry crosscuts, including natural gas, petroleum, coal, and nuclear. This year's report is especially important as it follows on the heels of historic federal legislation with significant investments in the energy industry, as well as tracks the follow-on impacts of the global Coronavirus (COVID-19) pandemic and subsequent growth.

The Pennsylvania Department of Environmental Protection (DEP) Energy Programs Office commissioned BW Research Partnership to produce this third installment of the Pennsylvania Energy Employment Report. The DEP works to protect Pennsylvania's air, land, and water from pollution, restore these natural resources, and provide for the health and safety of its citizens through a cleaner environment. Advancing this mission, the DEP Energy Programs Office is the primary entity under the Governor's jurisdiction for the implementation of programs that promote knowledge and adoption of energy efficiency and energy conservation technologies and indigenous, clean, diverse, and alternative fuels, including energy production and use technologies. One of its core functions is to work with partners to gather data and develop resources to enable policymakers, planners, and other leaders throughout Pennsylvania to achieve informed and best-outcome decisions related to energy.

All data presented are based on the 2022 United States Energy and Employment Report (USEER) data collection effort, which was published by the Department of Energy.<sup>2</sup> For more information on the methodology, please refer to Appendix A. For a detailed list of energy sub-technologies included in this report, please refer to Appendix B.

**Acknowledgments:** This material is based upon work supported by the United States Department of Energy, Office of Energy Efficiency and Renewable Energy, under State Energy Program Award Number DE-EE0009485.

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<sup>1</sup> The major energy technology sectors are as follows: (1) electric power generation; (2) transmission, distribution, and storage; (3) fuels; (4) energy efficiency; and (5) motor vehicles.

<sup>2</sup> <https://www.energy.gov/policy/us-energy-employment-jobs-report-user>

## Pennsylvania Energy Jobs Overview

**At the end of 2021, there were 258,202 energy workers across the Commonwealth of Pennsylvania accounting for 4.2 percent of all jobs.**<sup>3</sup> Total energy employment increased by 3.3 percent, or 8,312 jobs, from the last quarter of 2020 to the last quarter of 2021. Total energy employment in Pennsylvania is now just under the 2018 levels of energy employment baseline.

**Job growth in the energy sector was slightly slower than the statewide average.** Between Q4 2020 and Q4 2021, Pennsylvania's overall labor market grew by roughly 4.1 percent, adding roughly 243,225 jobs, while energy grew by 3.3 percent.

**When looking at growth between sectors, transmission, distribution, and storage had the highest relative and absolute growth, increasing jobs by 13.9 percent and adding 5,723 jobs.** Transmission, distribution, and storage accounted for just over 18 percent of total energy employment and increased by roughly 5,700 jobs, or almost 14 percent, between 2020 and 2021.

**The motor vehicles sector continued to be the largest source of energy employment in Pennsylvania, comprising almost a third of all energy jobs at the end of 2021.** From Q4 2020 to Q4 2021 motor vehicles employment increased by just about one percent or roughly 750 jobs. Of the motor vehicle sub-sectors, hydrogen and fuel cell vehicles saw the greatest growth at 48 percent, adding 158 jobs to the sub-sector, while hybrid electric vehicles and electric vehicles together grew 19 percent and 24 percent respectively for a combined addition of 1,150 new jobs. Gasoline and diesel vehicles saw a decline of 4.4 percent, losing roughly 2,700 jobs.

**Employment in energy efficiency, which was the second largest energy sector after motor vehicles, grew by 3.6 percent, or 2,384 new jobs.** Energy efficiency jobs account for just over a quarter of total energy employment across the state.

**Fuels employment represented almost 17 percent of all energy jobs in Pennsylvania.** The largest losses in the fuels sub-sectors were in petroleum, which decreased by almost 7 percent, shedding 1,050 jobs.

Employment in electric power generation increased by about four percent from 2020 through 2021. At the end of 2021, there were roughly 20,506 electric power generation workers in the commonwealth, representing about eight percent of all energy jobs. **Of electric power generation jobs, solar grew the most, by over 600 jobs, followed by low-impact hydropower with 172 additional jobs and wind adding 129 jobs.**

**All industry crosscuts shed jobs between Q4 2020 and Q4 2021 with the petroleum and nuclear industries exhibiting the largest losses.** Petroleum jobs, including production and extraction, transportation, storage, and electricity generation, declined by 3.1 percent—a loss of roughly 638 workers. Following petroleum, the nuclear industry shed just under 200 jobs for a decline of 4.1 percent.

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<sup>3</sup> Total state employment is taken from the Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Data was accessed in August 2022. As of May 2021, there were a total of 5.5 million workers in Pennsylvania.

FIGURE 1. ENERGY EMPLOYMENT IN PENNSYLVANIA, 2017-2021

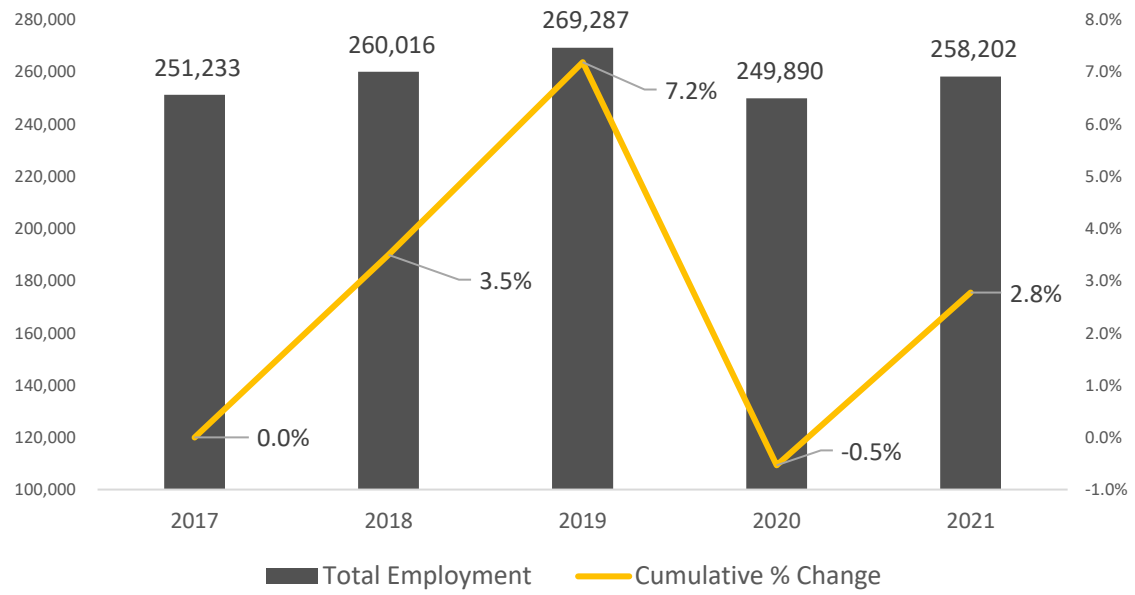
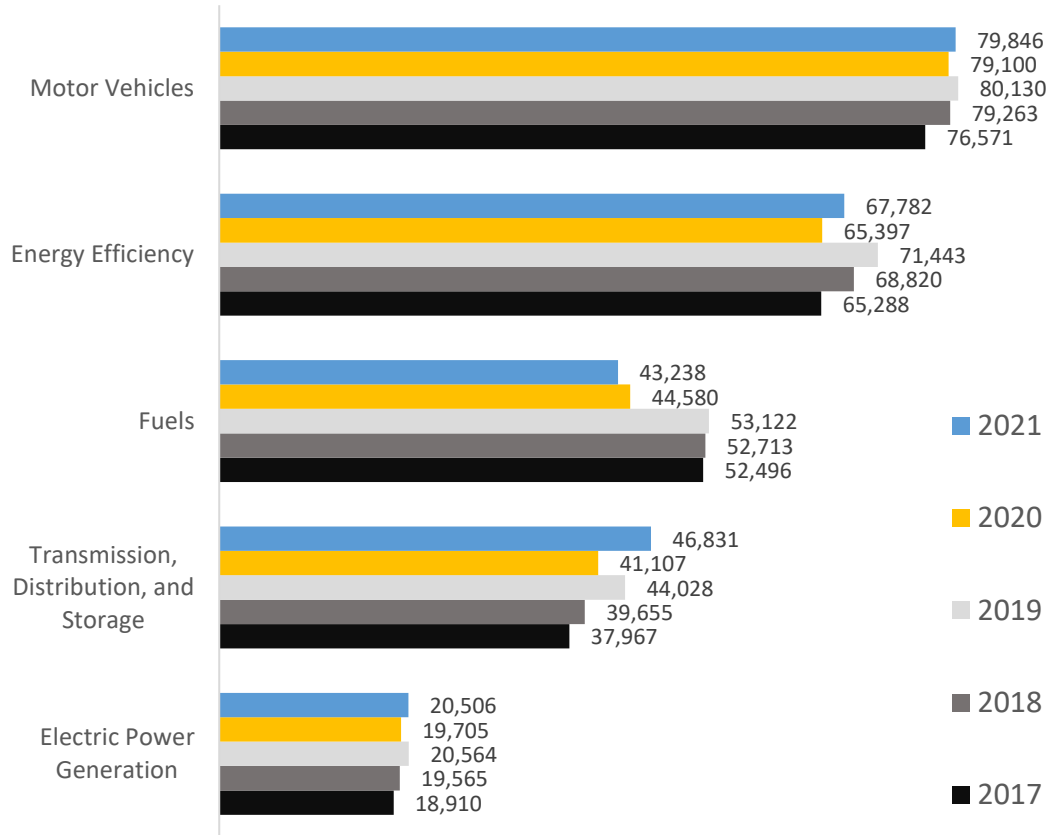


FIGURE 2. ENERGY EMPLOYMENT BY TECHNOLOGY, 2017-2021



## Industry Crosscut Employment

The following section provides an update to last year’s “industry crosscut” analysis, which highlights specific industries or fuel sources with jobs that span multiple technology sectors. The aggregation of industry- and fuel-specific jobs is important for sectors like coal or petroleum, as employment related to these fuel sources and technologies is contained across fuels, electric power generation, and transmission, distribution, and storage. For example, coal mining workers are counted in the fuels sector while coal electric power generation workers are counted under the electric power generation sector. At the end of 2021, Pennsylvania’s natural gas, petroleum, coal, and nuclear industries totaled to the following:

Natural Gas Jobs	Petroleum Jobs	Coal Jobs	Nuclear Jobs
<b>20,994</b>	<b>19,690</b>	<b>9,178</b>	<b>4,640</b>

These employment totals include all jobs across fuel extraction and mining, power line transmission and wholesale trade and distribution, fuel storage, and electricity generation from the above sources of energy.

### Petroleum

Following significant employment growth from Q4 2017 through Q4 2019, the petroleum industry in Pennsylvania declined by about 3,400 jobs between Q4 2019 and Q4 2020. This trend continued from Q4 2020 to Q4 2021, declining by about 3.1 percent, shedding 683 jobs. These declines were largely the result of losses from the petroleum fuels sector, as oil electric power generation represents a small segment of jobs in Pennsylvania’s energy industry.

### Natural Gas

Natural gas industry employment was generally on the decline prior to COVID-19. From Q4 2017 through Q4 2019, natural gas jobs declined by over seven percent—mostly the result of job losses in the natural gas fuels sector. Between Q4 2019 and Q4 2020 alone, natural gas industry employment declined by more than 2,700 jobs, or about 11 percent. From Q4 2020 to Q4 2021, the natural gas industry saw little to no employment change, declining by less than half a percent, or 35 jobs, which is likely within the margin of error. Though Pennsylvania is the nation’s second largest producer of natural gas, producing seven trillion cubic feet in 2020 and accounting for one-fifth of U.S. gas production,<sup>4</sup> employment continued to decline.

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<sup>4</sup> U.S. Energy Information Administration. State Profile and Energy Estimates. Data accessed August 2022.

## Coal

Similar to natural gas, the coal industry in Pennsylvania had seen job losses prior to COVID-19. Between Q4 2017 and Q4 2020, coal industry employment declined by 14.3 percent, the result of job losses in the coal electric power generation sector. Between Q4 2019 and Q4 2020 alone, coal jobs declined by 11 percent, for an additional loss of almost 1,200 jobs. From Q4 2020 to Q4 2021, coal industry employment in Pennsylvania remained largely unchanged. However, job losses in the coal industry are likely to continue as the commonwealth and nation continue trending away from coal fuels for electric power generation. Nationally, coal production has declined by 42 percent from 2000 through 2021.<sup>5</sup>

## Nuclear

Nuclear industry jobs have slowly been declining in Pennsylvania. From Q4 2017 through Q4 2021, the nuclear industry shed about 756 jobs—a roughly 14 percent decline in four years. From Q4 2020 to Q4 2021, employment in the industry was largely unchanged. This follows on the heels of significant decline between Q4 2019 and Q4 2020, during which time the nuclear industry shed 300 jobs, a decline of six percent in 12 months. The closure of Three Mile Island at the end of 2019 resulted in hundreds of job losses for the commonwealth’s nuclear industry.<sup>6</sup> Also in 2019, natural gas-fired power plants overtook nuclear power as the number one producer for in-state electricity generation.<sup>7</sup> Since that time, nuclear production has continued to decline in Pennsylvania and across the United States. Between 2000 and 2021, nuclear electric power production declined by eleven percent.<sup>8</sup>

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<sup>5</sup> U.S Energy Information Administration. Table 1.2 Primary Energy Production by Source. Monthly Energy Review, August 2022. Data accessed August 2022.

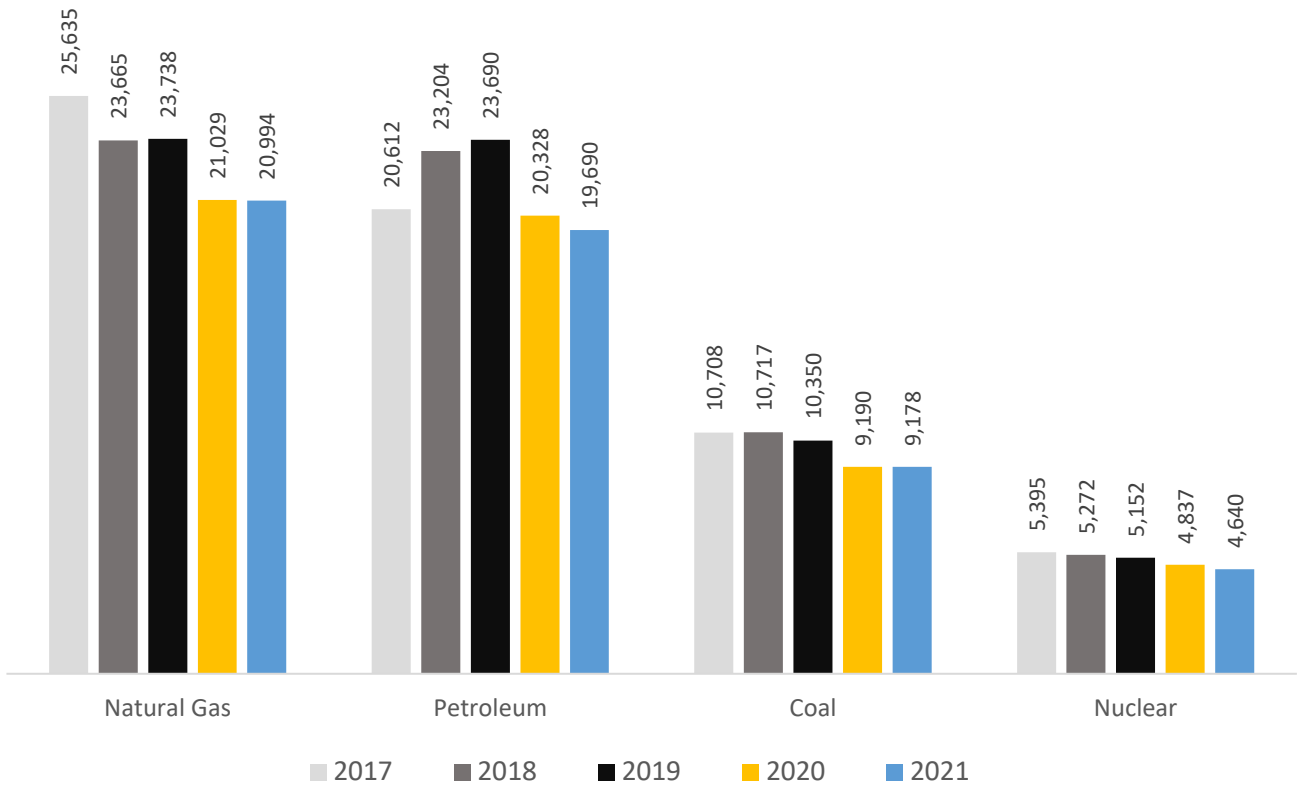
<sup>6</sup> Hawkes, Jeff. Over 100 Three Mile Island Workers Losing Jobs Oct. 1 when Unit 1 Closes, According to Exelon Notice. August 2019. [https://lancasteronline.com/news/local/over-100-three-mile-island-workers-losing-jobs-oct-1-when-unit-1-closes-according/article\\_2464acea-c444-11e9-a5dd-a7119de65deb.html](https://lancasteronline.com/news/local/over-100-three-mile-island-workers-losing-jobs-oct-1-when-unit-1-closes-according/article_2464acea-c444-11e9-a5dd-a7119de65deb.html).

<sup>7</sup> U.S Energy Information Administration. State Profile and Energy Estimates. Last updated September 2020. Data accessed March 2021.

<sup>8</sup> U.S Energy Information Administration. Table 1.2 Primary Energy Production by Source. Monthly Energy Review, August 2022. Data accessed August 2022.



FIGURE 3. INDUSTRY CROSSCUT EMPLOYMENT, 2017-2021



# Detailed Technology Sector Employment

## Motor Vehicles

The motor vehicles sector includes cars, light- and heavy-duty trucks, trailers, and motor vehicle component parts. Employment in this sector spans multiple industries, including manufacturing, repair and maintenance, wholesale trade, and professional and business services, as well as numerous occupations, such as mechanics and technicians, wholesale trade or manufacturing sales representatives, production workers, machinists, and team assemblers, as well as managers and supervisors of these workers.<sup>9</sup>

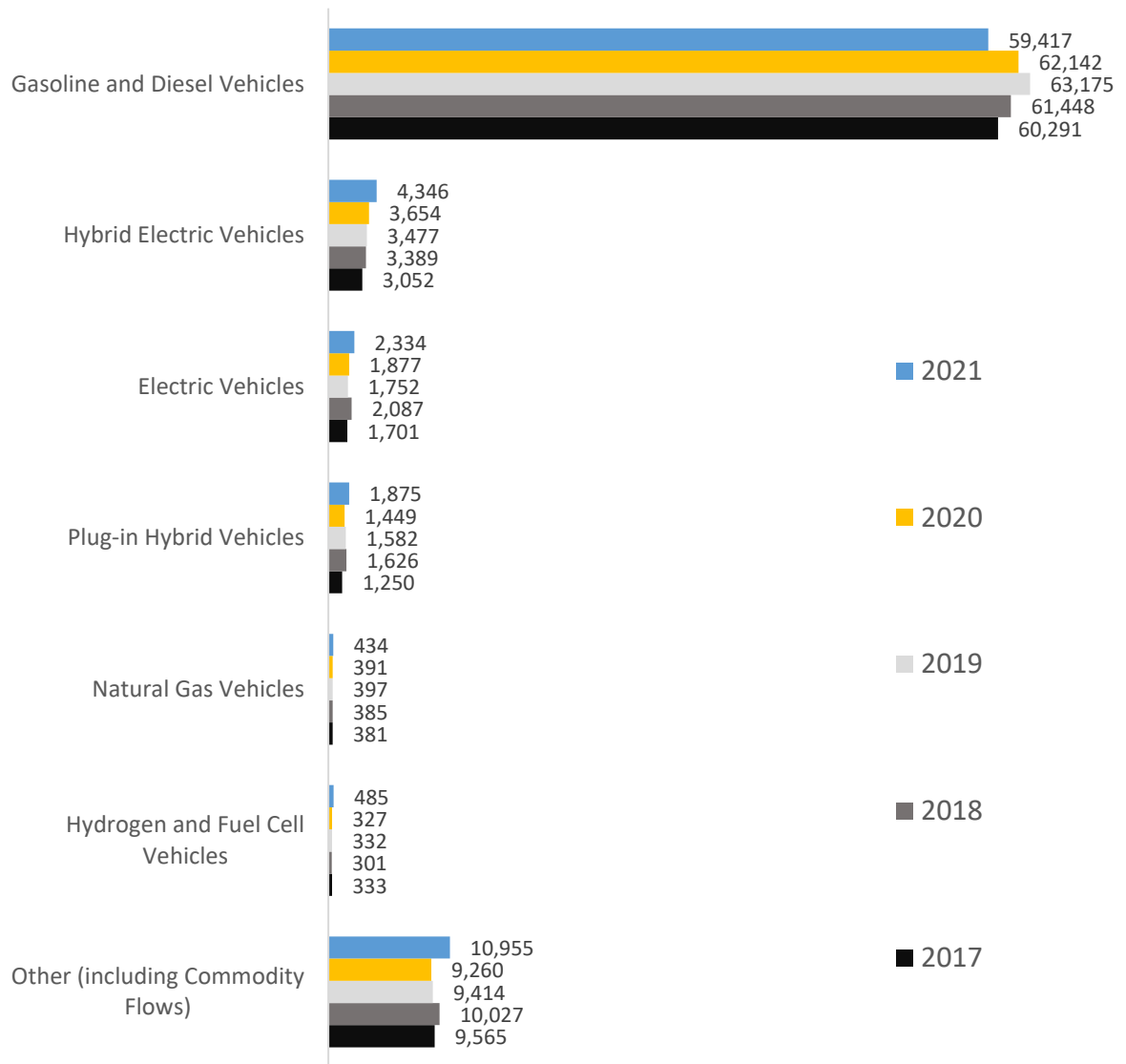
There were 79,846 motor vehicle jobs in Pennsylvania at the end of 2021. Gasoline and diesel vehicles remained the largest sub-sector, representing just under 75 percent of all motor vehicle employees in Pennsylvania, or 59,417 jobs at the end of 2021. Following significant growth from Q4 2017 through Q4 2019 and the start of a decline from Q4 2019 through Q4 2020, the sub-sector shed 2,725 jobs between Q4 2020 and Q4 2021—a decline of 4.4 percent. Gasoline and diesel vehicles was the only sub-sector that experienced job losses over this time period, while the other sub-sectors rebounded from the Q4 2019 to Q4 2020 decline.

Hybrid electric vehicles saw employment grow by 692 jobs, or roughly 19 percent, during the Q4 2020 to Q4 2021 time period. Electric vehicles saw employment increase by 457 jobs, or 24.4 percent, during the same time period. Plug-in hybrid vehicles saw employment rise by 426 jobs, or 29.4 percent. Hydrogen and fuel cell vehicles grew by 152 jobs, or 48.2 percent. Jobs in the natural gas vehicles sub-sector grew by 11 percent, or roughly 43 jobs. And other jobs (including commodity flows) in the motor vehicles sector grew by 18.3 percent, or 1,695 jobs.

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<sup>9</sup> Car salesmen and car dealerships are excluded from motor vehicle employment. In general, the USEER data collection effort expressly excludes any employment in retail trade, such as motor vehicle dealerships, appliance and hardware stores, and other retail establishments.

FIGURE 4. MOTOR VEHICLE EMPLOYMENT BY SUB-SECTOR, 2017-2021<sup>10</sup>



<sup>10</sup> Commodity flows include air, rail, water, and truck transportation of motor vehicles and motor vehicle component parts. Employers also place their workers in the “other” category when they are unable to assign employees to specific sub-technology/sub-sector for which they spend most of their labor hours. Higher employment in “other” motor vehicles is common, since much of employment is concentrated in repair and maintenance, and motor vehicle repair technicians tend to work across multiple technologies.

## Energy Efficiency

Most energy efficiency jobs are found in the construction trades, though employment also spans other industries, such as professional and business services, manufacturing, and wholesale trade. This sector includes work dedicated to the production and installation of energy-saving products as well as the provision of services that reduce end-use energy consumption. Typical energy efficiency occupations include carpenters, electricians, insulation workers, HVAC workers, sales representatives, engineers, and architects; these are individuals that work with or manufacture ENERGY STAR® products, design buildings to improve natural light and reduce overall energy consumption, provide insulation, or install, maintain, and repair energy-efficient products or software services.

The largest sub-technology within Pennsylvania's energy efficiency sector, traditional HVAC,<sup>11</sup> accounted for about three in ten energy efficiency workers at the end of 2021. Traditional HVAC employment increased by 3.7 percent, or about 669 jobs. Following traditional HVAC, the high efficiency HVAC and renewable heating and cooling sub-technology<sup>12</sup> accounted for about two in ten clean energy workers at the end of 2021. This sub-technology increased by 3.7 percent as well, for a job increase of 560 workers.

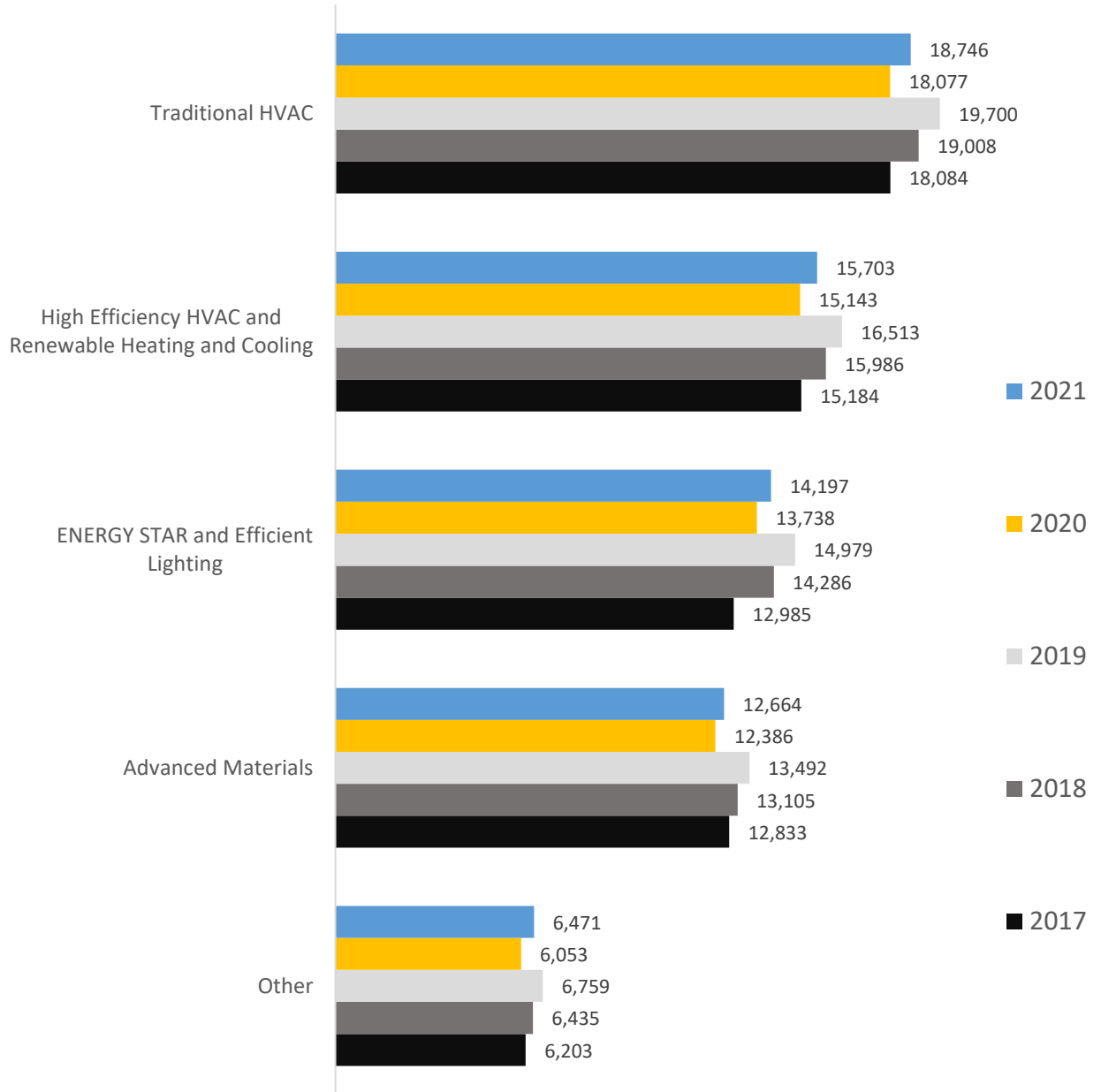
Between Q4 2017 and Q4 2019, all energy efficiency sub-sectors experienced employment growth. However, from Q4 2019 through Q4 2020, all sub-sectors saw job losses. From Q4 2020 to Q4 2021 following on the heels of the COVID-19 pandemic, all sub-sectors saw a slight rebound in employment, though job totals were still below the pre-pandemic levels.

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<sup>11</sup> Traditional HVAC workers are individuals that spend a portion of their labor hours on energy efficient HVAC technologies, but the majority of time on traditional HVAC technologies, while high efficiency HVAC workers spend the majority of their labor hours working with efficient HVAC technologies.

<sup>12</sup> Renewable heating and cooling workers are involved with heating, ventilation and air conditioning (HVAC) from renewable energy sources, including solar thermal, or other work that increases the energy efficiency of HVAC systems.

FIGURE 5. ENERGY EFFICIENCY EMPLOYMENT BY SUB-SECTOR, 2017-2021<sup>13</sup>



<sup>13</sup> The “other” energy efficiency sub-sector includes design, consulting, software, auditing, rating, monitoring, metering, leak detection, and political and non-profit services that are not specific to a detailed technology. This category also includes workers that cannot be classified to a single category where they spend the majority of their labor hours.

## Fuels

The fuels sector encompasses any work related to fuel extraction, mining, and processing, including petroleum refineries and businesses that support coal mining, oil, and gas field machinery manufacturing. The sector also includes forestry and agriculture workers who support fuel production, such as corn ethanol, biodiesel, and wood fuels. Fuels employment spans several industries including mining and extraction, manufacturing, professional and business services, wholesale trade and distribution<sup>14</sup>, agriculture and forestry, and construction.

At the end of 2021, there were 43,238 jobs in the fuels sector, up 1,342 from the end of 2020. From Q4 2020 to Q4 2021 petroleum, natural gas, and coal all saw job losses, woody biomass, other ethanol and non-woody biomass, nuclear, other biofuels and other jobs all saw small growth.

The petroleum sub-sector remained the largest employer of fuels workers in Pennsylvania, representing 33.4 percent of total fuels jobs across the state. At the end of 2021, the petroleum fuels sector employed almost 14,420 workers—a decline of 6.8 percent—or roughly 1,053 jobs from the prior year. This follows a decline in the previous year of nearly 17 percent, or more than 3,000 jobs, from Q4 2019 to Q4 2020.

Following petroleum fuels, the natural gas fuels sub-sector accounts for just over a quarter, or 26 percent, of total fuels employment in Pennsylvania. Natural gas jobs have been declining since 2017, which has been further accelerated by the COVID-19 pandemic. Job losses from Q4 2019 through Q4 2020 in the natural gas fuels sector totaled to almost 2,500 workers—an 18 percent decline in jobs over 12 months. From Q4 2020 to Q4 2021, natural gas jobs continued to decline but at a slower rate. From Q4 2020 to Q4 2021, jobs in the sub-sector dropped by 2.4 percent, or roughly 275 jobs.

Coal fuels accounted for roughly one in ten fuels jobs in Pennsylvania, just under 12 percent of the fuels workforce. Between Q4 2020 and Q4 2021, coal fuels employment shrank by roughly 162 workers—a 3.1 percent decline. Corn ethanol employment was largely unchanged during this period.

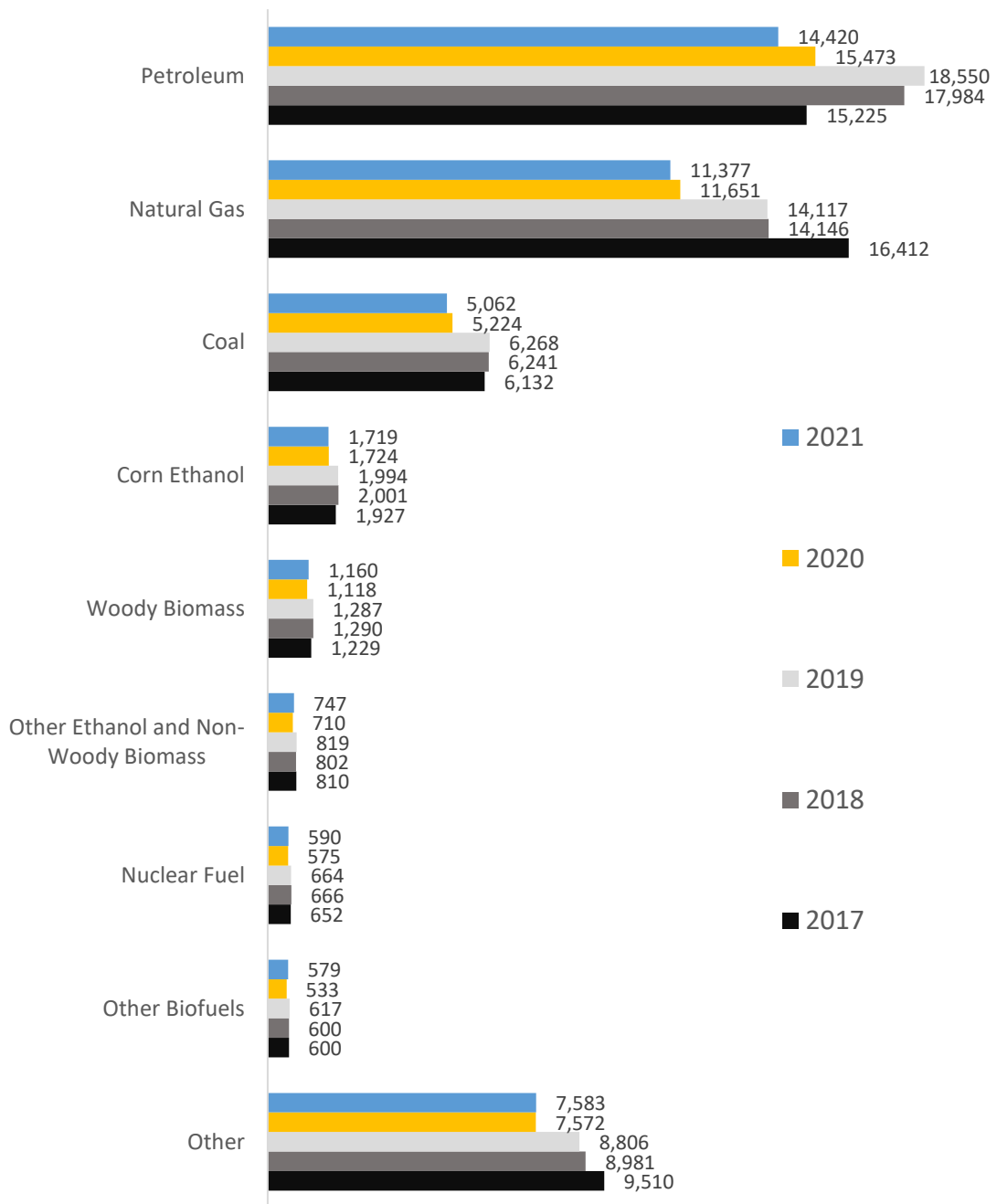
The remaining sub-sectors of woody biomass, non-woody biomass, nuclear fuel, “other” fuels, and other biofuels<sup>15</sup> accounted for just over a quarter, or 28 percent, of all fuels sector jobs. Altogether, these sub-sectors gained roughly 152 jobs from Q4 2020 to Q4 2021.

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<sup>14</sup> As with motor vehicles, retail trade workers—such as gas pump and convenience store employees—are excluded from the employment estimates.

<sup>15</sup> Other biofuels include any other fuel that is derived directly from living matter.

FIGURE 6. FUELS EMPLOYMENT BY SUB-SECTOR, 2017-2021<sup>16</sup>



<sup>16</sup> The “other” fuels category is comprised mostly of propane with the remaining jobs spread across waste gas, such as landfill, food, or agricultural; hydrogen; and other fuels like alcohol or ammonia. Additionally, for any jobs that could not be assigned to a single sub-sector based on majority of labor hours, employers typically select “other” when their employees work with multiple sub-technologies.

## Transmission, Distribution, and Storage

Transmission, distribution, and storage includes all infrastructure for electric power and fuel energy supplies to intermediate and end users. This includes interstate and intrastate pipelines, natural gas storage facilities, ports and railways that handle petroleum products, as well as high-voltage transmission and distribution lines. Employment in this sector is mostly concentrated in construction and utilities, but it also includes professional and business services, wholesale trade and distribution, and manufacturing. Occupations include professional service workers such as engineers, analysts, business operations specialists, and chief executives, as well as sales representatives, accountants, construction workers, technicians, mechanics, and repairmen.

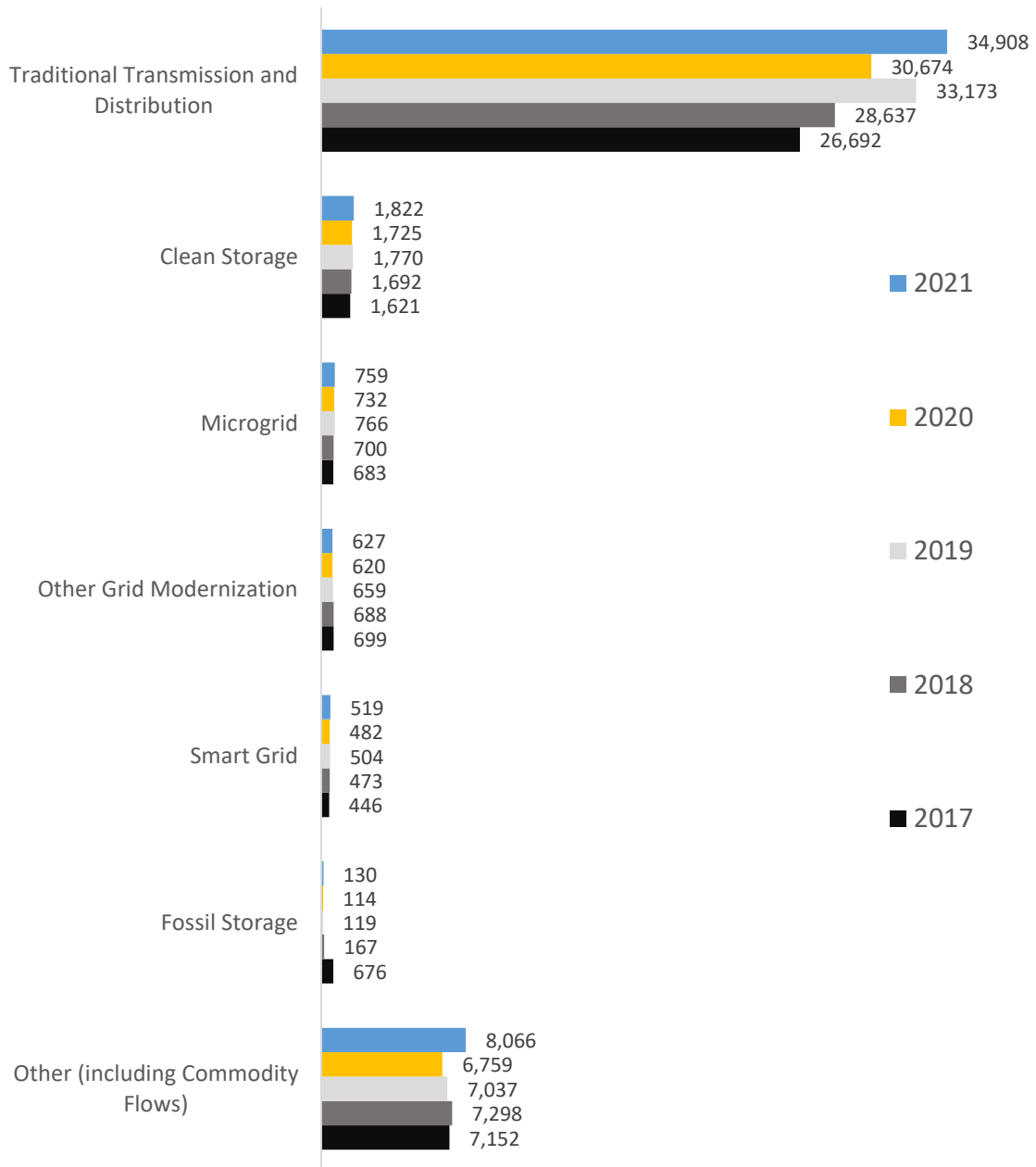
Transmission, distribution, and storage technologies employed just over 46,831 workers at the end of 2021. Traditional transmission and distribution was the largest component of the transmission, distribution, and storage sector, accounting for three-quarters of the total workforce. Following a loss of 2,500 jobs from Q4 2019 to Q4 2020, the sub-sector grew by 13.8 percent, or 4,233 jobs, from Q4 2020 to Q4 2021. The smart grid, microgrid, and clean storage<sup>17</sup> sub-sectors together gained just under 200 jobs over the same time period, while the “other” sub-sector, which includes commodity flows, increased by about 20 percent, or 1,307 jobs.

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<sup>17</sup> “Smart grid” is an electricity supply network that uses digital communications technology to detect and react to local changes in usage. “Microgrids” are a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. “Clean storage” includes pumped hydropower storage, battery storage (including battery storage for solar generation), mechanical storage, thermal storage, as well as storage of biofuels (including ethanol and biodiesel) and nuclear fuels.



FIGURE 7. TRANSMISSION, DISTRIBUTION, AND STORAGE EMPLOYMENT BY SUB-SECTOR, 2017-2021<sup>18</sup>



<sup>18</sup> The “other” employment sub-sector includes commodity flows, which are defined as the air, rail, water, and truck transportation of energy commodities such as coal, fuel, oil, gas, and petroleum. The sub-sector also includes system efficiency, software, site selection, disaster response plans (DRP), incident response plans (IRP), as well as any workers that cannot be classified to a single category where they spend the majority of their labor hours.

## Electric Power Generation

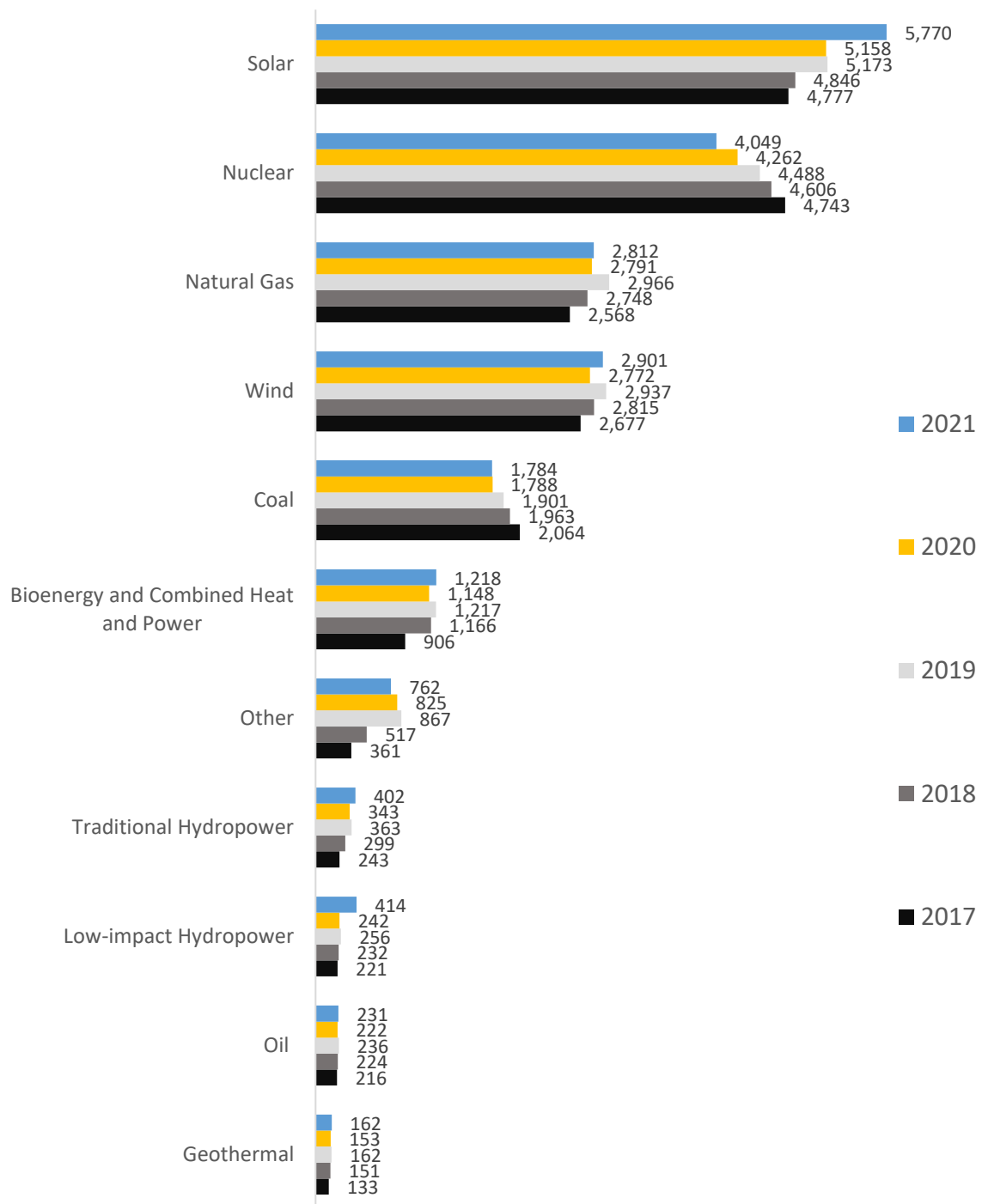
Electric power generation jobs cover all utility and non-utility employment for electricity-generating technologies. Included in these employment estimates are any firms engaged in facility construction, turbine and other generation equipment manufacturing, and wholesale parts distribution for all electricity-generating technologies as well as professional and business services such as consulting, finance, administrative, and legal support.

In total, there were roughly 20,506 electric power generation workers across Pennsylvania at the end of 2021. Solar and nuclear jobs continued to account for almost half, or 48 percent, of total electric power generation employment in Pennsylvania. The solar sub-sector exhibited strong growth from Q4 2017 all the way through Q4 2021, averaging growth of 20.8 percent through the four years. From Q4 2020 to Q4 2021 solar saw an increase of 11.9 percent, or 612 jobs.

The next largest sub-sector, nuclear generation, declined by roughly five percent, or 213 jobs.

Natural gas electric power generation grew by 21 jobs for an increase of less than one percent from Q4 2020 to Q4 2021. The wind sub-sector grew by about just under 5 percent, or roughly 129 jobs.

FIGURE 8. ELECTRIC POWER GENERATION EMPLOYMENT BY SUB-SECTOR, 2017-2021<sup>19</sup>



<sup>19</sup> The “other” sub-sector includes generation from incineration of other fuels, such as waste. It also includes workers that cannot be classified into a single sub-sector where they spend the majority of their time.

## Appendix A: Research Methodology

### EMPLOYMENT DATA

This Pennsylvania Energy and Employment Report (PAEER) is based on data taken from the U.S. Energy and Employment Report (USEER). The survey was administered by phone and web. The phone survey was conducted by ReconMR, and the web instrument was programmed internally. Each respondent was required to use a unique ID in order to prevent duplication.

The survey uses a stratified sampling plan based on industry code (North American Industry Classification System or NAICS), establishment size, and geography to determine the proportion of establishments that work with specific energy related technologies, as well as the proportion of workers in such establishments that work with the same. These data are then analyzed and applied to existing public data published by the Bureau of Labor Statistics' Quarterly Census of Employment and Wages, effectively constraining the potential universe of energy establishments and employment.

The 2022 USEER survey in Pennsylvania resulted in more than 11,000 calls, nearly 3,300 emails, and more than 1,300 physical letter invites mailed to potential respondents. Approximately 840 business establishments participated in the survey. These responses were used to develop incidence rates among industries as well as to apportion employment across various industry categories in ways currently not provided by state and federal labor market information agencies. The margin of error is +/-3.37 percent at a 95 percent confidence level.

The full research methodology for USEER may be found at: <https://www.energy.gov/media/275711>

## Appendix B: Energy Technology List

An energy job is defined as any worker that is directly involved with the research, development, production, manufacture, distribution, sales, implementation, installation, or repair of components, goods, or services related to the following sectors of Electric Power Generation; Electric Power Transmission, Distribution, and Storage; Energy Efficiency; Fuels; and Transportation. These jobs also include supporting services such as consulting, finance, tax, and legal services related to energy. Included in these sectors are the following sub-technologies that are currently considered to be energy-related activities:

### ELECTRIC POWER GENERATION

- Solar Photovoltaic Electric Generation
- Concentrated Solar Electric Generation
- Wind Generation
- Geothermal Generation
- Bioenergy/Biomass Generation
- Low-Impact Hydroelectric Generation, including wave/kinetic generation
- Traditional Hydroelectric Generation
- Advanced/Low-Emission Natural Gas
- Nuclear Generation
- Coal Generation
- Oil and Other Petroleum Generation
- Natural Gas Generation
- Combined Heat and Power
- Other Generation

### ELECTRIC POWER TRANSMISSION, DISTRIBUTION, AND STORAGE

#### Electric Power Transmission and Distribution

- Traditional Transmission and Distribution
- Smart Grid
- Microgrids
- Other Grid Modernization
- Other Transmission

#### Storage

- Pumped Hydropower Storage
- Battery Storage, including battery storage for solar generation
  - Lithium Batteries
  - Lead-Based Batteries
  - Other Solid-Electrode Batteries
  - Vanadium Redox Flow Batteries
  - Other Flow Batteries
- Mechanical Storage, including flywheels, compressed air energy storage, etc.
- Thermal Storage
- Liquefied Natural Gas
- Compressed Natural Gas

- Crude Oil
- Refined Petroleum Fuels (liquid)
- Refined Petroleum Fuels (gas)
- Coal Storage (piles, domes, etc.)
- Biofuels, including ethanol and biodiesel
- Nuclear Fuel
- Other Gas Fuel
- Other Liquid Fuel
- Other Storage

## ENERGY EFFICIENCY

- ENERGY STAR Certified Appliances, excluding HVAC
- ENERGY STAR Certified Heating Ventilation and Air Conditioning (HVAC), including boilers and furnaces with an AFUE rating of 90 or greater and air and central air conditioning units of 15 SEER or greater
- Traditional HVAC goods, control systems, and services
- ENERGY STAR Certified Electronics (TVs, Telephones, Audio/Video, etc.)
- ENERGY STAR Certified Windows and Doors
- ENERGY STAR Certified Roofing
- ENERGY STAR Certified Seal and Insulation
- ENERGY STAR Certified Commercial Food Service Equipment
- ENERGY STAR Certified Data Center Equipment
- ENERGY STAR Certified LED Lighting
- Other LED, CFL, and Efficient Lighting
- Solar Thermal Water Heating and Cooling
- Other Renewable Heating and Cooling (geothermal, biomass, heat pumps, etc.)
- Advanced Building Materials/Insulation
- Recycled Building Materials
- Reduced Water Consumption Products and Appliances
- Other Energy Efficiency

## FUELS

- Coal
- Petroleum
- Natural Gas
- Other Fossil Fuels
- Corn Ethanol
- Other Ethanol/Non-Woody Biomass, including biodiesel
- Woody Biomass/Cellulosic Biofuel
- Other Biofuels
- Nuclear Fuel
- Other Fuels

## TRANSPORTATION

- Gasoline and Diesel Motor Vehicles, excluding freight transport
- Hybrid Electric Vehicles
- Plug-In Hybrid Vehicles
- Electric Vehicles

- Natural Gas Vehicles
- Hydrogen Vehicles
- Fuel Cell Vehicles
- Other Vehicles
- Transportation Vehicle Engine and Drive Parts
- Transportation Vehicle Exhaust System Parts
- Transportation Vehicle Body Parts
- Other Transportation Vehicle Parts