

2019 Minnesota Energy & Employment Report

A JOINT PROJECT OF NASEO & EFI



Minnesota

ENERGY AND EMPLOYMENT REPORT — 2019

SUMMARY

The 2019 Minnesota Energy and Employment Report (MNEER) analyzes the following five sectors of the Minnesota 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.¹

Based on a comprehensive analysis of employer data collected in the fourth quarter of 2018, the 2019 MNEER finds that the Traditional Energy and Energy Efficiency sectors in 2018 employed approximately 93,000 Minnesotans or 2.5 percent of a workforce of roughly 2.93 million. Employment in these sectors increased in 2018 by 2.7 percent from the previous year, adding 3,068 net new jobs, more than 13 percent of all new jobs in the state.²

The Fuels sector employed 10,800, an increase of 1,150 or 11.9 percent in 2018.

- Petroleum fuels added the most jobs of any traditional energy sector, with 1,020 new positions, an increase of 15.7 percent to 7,550 jobs.
- Corn ethanol provided the second most fuel jobs, 1,410, while declining slightly.
- Coal, natural gas, woody biomass, and other fuels all added a small number of jobs.

The Electric Power Generation sector employed 12,930 workers in MN and grew by 3.5 percent, adding 440 jobs. Job losses in nuclear and coal generation were more than offset by gains in solar, natural gas, and wind.

¹ Industry employment in Minnesota was revised from the 2018 USEER due to availability of more granular data from EIA and BLS.

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.

Minnesota was one of 28 states that added net jobs in Electric Power Generation in 2018.

- Solar energy firms employed 4,600 employees who spent the majority of their time on solar.³ An additional 320 employees spent less than half their time on solar-related work. The number of majority-time solar jobs in Minnesota increased by 346 or 8.1 percent.
- There were an additional 2,220 workers employed at wind energy firms across the state in 2018, an increase of 6.5 percent or 136 jobs.
- Nuclear generation employs 1,870 workers in MN, a decline of 54.
- All natural gas employment in Electric Power Generation increased by over 100 (18 percent), for 700 jobs.
- Coal-fired generation employment declined by approximately 120 jobs, or 7 percent, roughly the national average.

Transmission, Distribution, and Storage employed more than 23,300 Minnesotans. Excluding retail trade (gasoline stations and fuel dealers), this represents an increase of 140 new jobs or less than 1 percent, compared to a 2.6% increase nationally.

- Utilities and construction were the two strongest industry sectors in Transmission, Distribution, and Storage, in Minnesota, making up almost 71 percent of the total jobs.

Energy Efficiency employed 46,200 Minnesotans, in whole or in part, in the design, installation, and manufacture of Energy Efficiency products and services, adding 1,330 net jobs in 2018 (3 percent).

- 28,600 of Minnesota's Energy Efficiency jobs are in the construction industry, an increase of 820 jobs, from 2017.
- Energy Efficiency professional services, wholesale trade, manufacturing, and other services all gained jobs with professional services increasing by 220 or almost 3 percent.
- Over 5,000 Minnesotans are now employed in manufacturing jobs, producing ENERGY STAR certified products and energy efficient building materials.

Motor Vehicles (including component parts) employed more than 33,350 workers, excluding automobile dealerships and retailers, adding almost 750 jobs in 2018 in Minnesota, an increase of 2.3 percent.

- Repair and maintenance provides the largest share of this employment, making up just under one half.
- Alternative fuels' vehicles, including electric, plug-in hybrids, hybrids, natural gas, and hydrogen/fuel cells, now employ 3,340 Minnesotans, roughly 10% of all Motor Vehicles' jobs.

³ The Solar Foundation 2018 Solar Jobs Census.

Hiring and Demographics

Overall, Traditional Energy firms in Minnesota anticipate 5.3 percent employment growth for 2019, compared to 4.1 percent nationally.

- Energy Efficiency employers project the highest growth rate over 2019 (7.9 percent),
- Electric Power Generation (7.3 percent);
- Transmission, Distribution, and Storage (5 percent),
- Fuels (3.7 percent),
- Motor Vehicles sector (3.2 percent).

Hiring difficulty exceeded the national average in Minnesota in Electric Power Generation, Transmission, Distribution and Storage, and Energy Efficiency. 40, 33, and 47 percent respectively of these employers reported it was very difficult to hire new employees.

- 88.3 percent of Energy Efficiency employers reported that it was very difficult or somewhat difficult to hire new employees, an increase of almost 10 percentage points. Energy Efficiency employers also predicted the highest anticipated growth of all sectors.

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 30 percent, compared to the overall Minnesota economy, where women make up 50 percent of the workforce.
- However, a majority of these energy sectors are more racially diverse than the Minnesota workforce. This is, in part, because of the increased self-identification of employees belonging to “2 or more races.”
- Veterans comprise from 9 to 11 percent of these sectors—higher than the Minnesota average of 9 percent.
- Between 16 percent and 21 percent of this workforce is 55 years of age or older, compared to the Minnesota average of 22 percent; this proportion is significantly lower in Electric Power Generation and Energy Efficiency.
- The unionization rates for Electric Power Generation, TDS, Energy Efficiency, and Motor Vehicles are all above the Minnesota private sector rate of 9%, while Fuels is at 8%

Wages

- The wage survey, conducted across 216 occupations in the Traditional Energy and Energy Efficiency sectors, showed that in 87% of those occupations Minnesota wages exceeded the national average.

- The highest wage differentials are paid for gas compressor and gas pumping station operators, boilermakers, and dredge operators.
- The majority of those occupations that paid less than the national median were in executive management, other managerial positions and professional services.

Conclusion

2018 marked another year in the evolution of Minnesota'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 MN history, the traditional energy and energy efficiency sectors continued to outperform the MN economy as a whole, adding over 3,000 new jobs, 13 percent of the 2018 increase.

Similar to the national energy workforce, Minnesota added jobs in natural gas and wind generation while losing jobs in coal and nuclear generation. However, MN also added jobs in solar generation, bucking the national trend. While the national solar industry lost 8,000 majority-time jobs, Minnesota gained nearly 350.

In spite of not having an extractive fuels' industry, Minnesota added over 1,100 fuels' jobs, primarily in the manufacturing and wholesale trade sectors, reflecting its proximity to the growth in oil production in North Dakota.

Minnesota's Transmission, Distribution and Storage workforce grew slightly, but at less than half the national average which jumped sharply in 2018, reflecting increased investments in energy infrastructure.

Energy Efficiency employment continued its steady growth, even in a high employment environment, challenged by the toughest hiring climate found in the USEER survey. In the last two years, Minnesota has added almost 2,400 energy efficiency jobs. Almost 2,000 of these were in the production, installation, and servicing of Energy Star products, efficient lighting, and high efficiency HVAC systems.

CHAPTER 1 — FUELS

Fuels employment encompasses work related to fuel extraction, mining, and processing, including petroleum refineries and firms that support coal mining, oil, and gas field machinery manufacturing. Workers across both the forestry and agriculture sectors who support fuel production with corn ethanol, biodiesels, and fuel wood are also included in the fuel employment data.

OVERVIEW

The Fuels sector employed 10,800 workers in 2018, compared to the previous year's level of nearly 9,660 workers. This represents a jump in employment of nearly 12 percent. As shown in Figure 1, wholesale trade jobs comprised over 40 percent of the Minnesota Fuels sector, while manufacturing jobs made up 38 percent of fuels employment in 2018. When analyzed by subtechnology in Figure 2, petroleum production jobs represented 70 percent of Minnesota Fuels employment in 2018.

Wholesale trade and distribution employment increased by almost 460 jobs in 2018, while manufacturing employment added more than 430 new jobs in 2018. As shown in Figure 2, the 2019 MNEER found large increases in 2018 for petroleum production jobs (more than 1,020 additional jobs, for a total of nearly 7,550 jobs).

Figure 1.
Fuels Employment by Industry, 2017-18

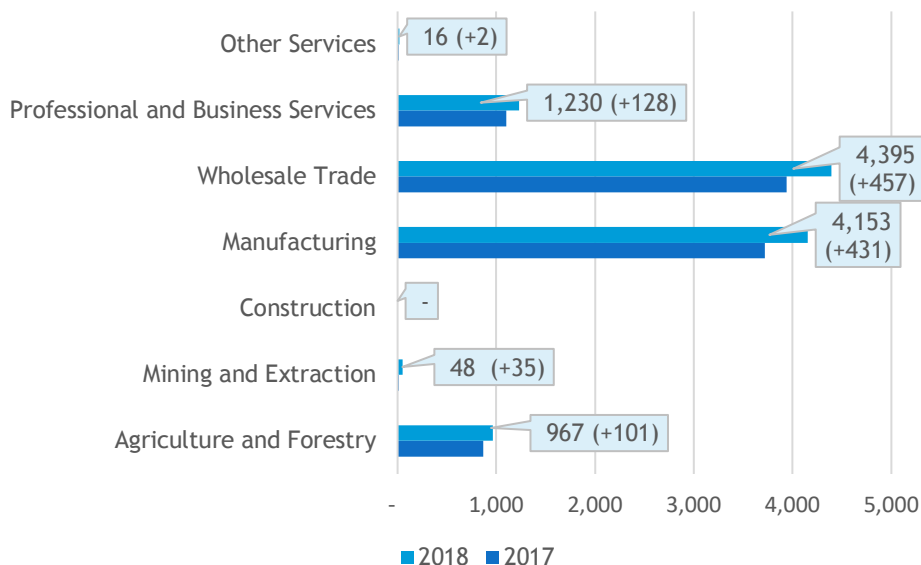
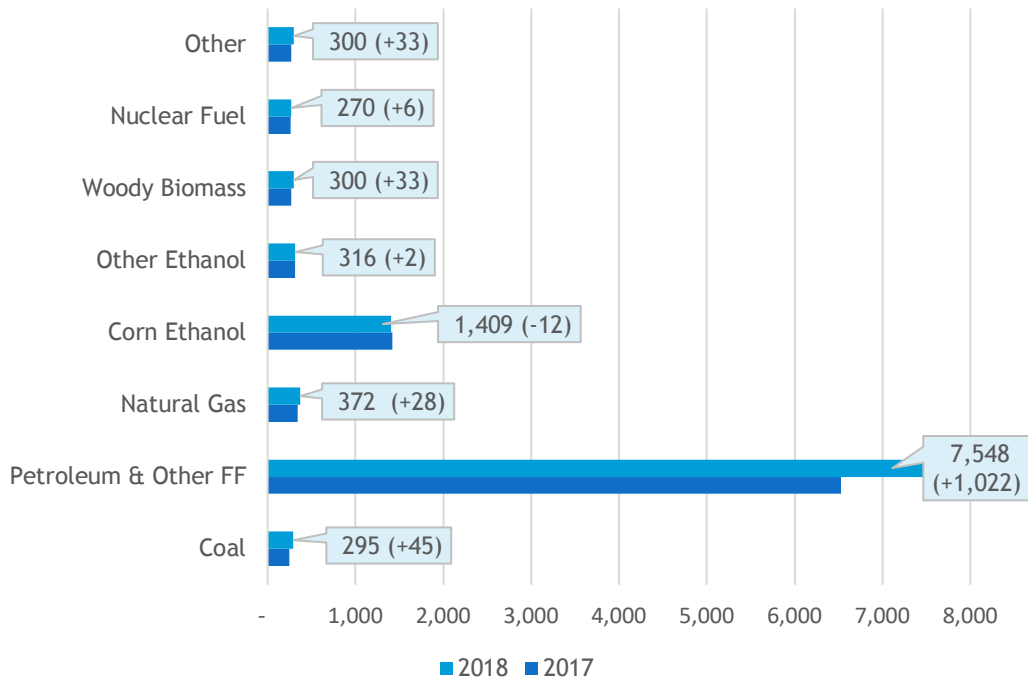
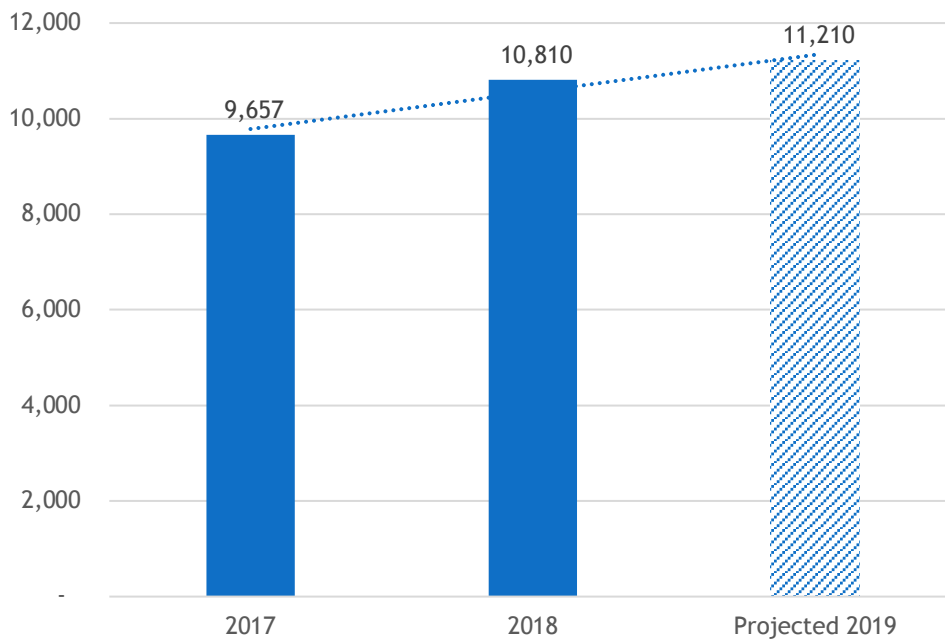


Figure 2.
Fuels Employment by Detailed Technology Application, 2017-18



Employers in the Fuels sector expect to see employment increase by nearly 4 percent in 2019, adding approximately 400 new jobs for a total of 11,210 jobs.

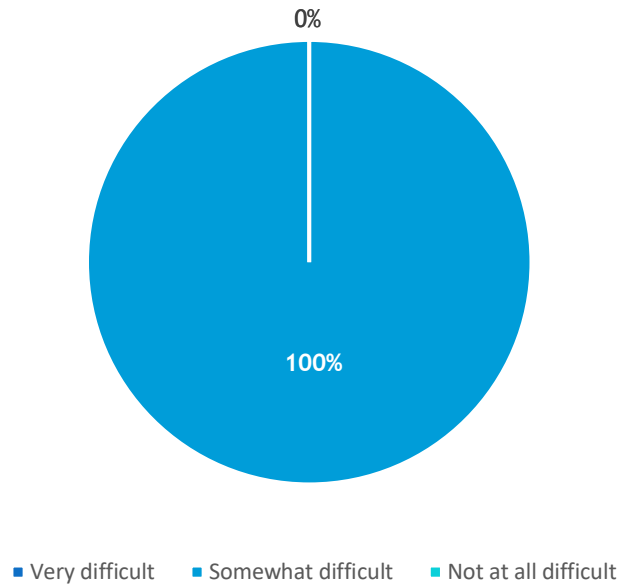
Figure 3.
Fuels Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the Fuels companies in Minnesota that hired in 2018, 100 percent found hiring to be somewhat difficult.

Figure 4.
Fuels Hiring Difficulty, 2018



The following table outlines the wage earners in Minnesota's Fuel sector.

Figure 5.
Fuels Sector Earners, Median Hourly Earnings

Description	US Median Wage	MN Median Wage
Petroleum Engineers	\$ 63.60	\$ 81.77
Chief Executives	\$ 88.11	\$ 63.64
Gas Compressor and Gas Pumping Station Operators	\$ 30.20	\$ 59.36
Boilermakers	\$ 29.93	\$ 48.18
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$ 37.90	\$ 46.01
Electricians	\$ 26.01	\$ 41.87
Dredge Operators	\$ 20.78	\$ 40.84
Structural Iron and Steel Workers	\$ 25.30	\$ 40.73
Plumbers, Pipefitters, and Steamfitters	\$ 25.28	\$ 40.69
Engineers, All Other	\$ 46.75	\$ 40.25
Brickmasons and Blockmasons	\$ 23.93	\$ 38.52
Sheet Metal Workers	\$ 23.07	\$ 37.14

Operating Engineers and Other Construction Equipment Operators	\$ 22.61	\$ 36.40
Insulation Workers, Mechanical	\$ 21.90	\$ 35.25
Accountants and Auditors	\$ 33.34	\$ 35.11
Carpenters	\$ 21.71	\$ 34.95
General and Operations Managers	\$ 48.27	\$ 34.87
Control and Valve Installers and Repairers, Except Mechanical Door	\$ 26.85	\$ 34.15
Construction Managers	\$ 43.93	\$ 33.38
Drywall and Ceiling Tile Installers	\$ 20.60	\$ 33.16
Industrial Machinery Mechanics	\$ 24.69	\$ 31.40
Roustabouts, Oil and Gas	\$ 17.77	\$ 30.38
Business Operations Specialists, All Other	\$ 33.66	\$ 30.17
Roofers	\$ 18.74	\$ 30.17
Production, Planning, and Expediting Clerks	\$ 22.44	\$ 30.13
First-Line Supervisors of Production and Operating Workers	\$ 28.31	\$ 29.96
Pipelayers	\$ 18.46	\$ 29.72
Engineering Technicians, Except Drafters, All Other	\$ 29.92	\$ 29.66
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$ 22.64	\$ 28.80
Insulation Workers, Floor, Ceiling, and Wall	\$ 17.81	\$ 28.67
Material Moving Workers, All Other	\$ 14.23	\$ 27.97
Construction Laborers	\$ 16.60	\$ 26.72
Heavy and Tractor-Trailer Truck Drivers	\$ 20.42	\$ 26.69
Laborers and Freight, Stock, and Material Movers, Hand	\$ 13.00	\$ 25.55
Rotary Drill Operators, Oil and Gas	\$ 25.95	\$ 24.33
Drafters, All Other	\$ 24.18	\$ 23.97
Installation, Maintenance, and Repair Workers, All Other	\$ 18.65	\$ 23.72
Helpers--Electricians	\$ 14.68	\$ 23.10
Maintenance and Repair Workers, General	\$ 18.11	\$ 23.03
Welders, Cutters, Solderers, and Brazers	\$ 19.35	\$ 22.94
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	\$ 14.37	\$ 22.62
Helpers--Carpenters	\$ 14.35	\$ 22.58
Surveying and Mapping Technicians	\$ 20.84	\$ 20.66
Bookkeeping, Accounting, and Auditing Clerks	\$ 18.87	\$ 20.51
Metal Workers and Plastic Workers, All Other	\$ 17.22	\$ 20.41
Assemblers and Fabricators, All Other, Including Team Assemblers	\$ 14.75	\$ 19.18
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$ 17.11	\$ 19.04
Helpers--Installation, Maintenance, and Repair Workers	\$ 13.70	\$ 17.43
Derrick Operators, Oil and Gas	\$ 22.18	\$ 16.79
Driver/Sales Workers	\$ 11.56	\$ 15.11

Workforce Characteristics

In 2018, the Fuels sector employed fewer women than the Minnesota workforce average. However, the Fuels sector is more racially diverse than the Minnesota workforce average. Union workers represented 8 percent of Minnesota's Fuels industry in 2018, 1 percent below the Minnesota private sector average. Veteran employment exceeded the Minnesota workforce average.

Fuels Sector — Demographics, Q4 2018

	Fuels	Minnesota Workforce Averages	National Workforce Averages
Male	76%	50%	53%
Female	24%	50%	47%
Hispanic or Latino	11%	5%	17%
Not Hispanic or Latino	89%	95%	83%
American Indian or Alaska Native	2%	1%	1%
Asian	5%	5%	6%
Black or African American	6%	6%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	75%	86%	78%
Two or more races	12%	2%	2%
Veterans	11%	9%	6%
55 and over	21%	22%	23%
Union (private sector)	8%	9%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 2 — ELECTRIC POWER GENERATION

Electric Power Generation (EPG) covers all utility and non-utility employment across electric generating technologies, including fossil fuels, nuclear, and renewable energy technologies. Also included in the employment totals are any firms engaged in facility construction, turbine and other generation equipment manufacturing, and wholesale parts distribution for all electric generation technologies.

OVERVIEW

The Electric Power Generation sector employed 12,930 workers in 2018, compared to the previous year's level of 12,490 workers. This represents a jump in employment of more than 3 percent. Construction jobs comprised nearly 45 percent of the Minnesota EPG sector, while utilities jobs made up 38 percent of EPG employment in 2018. Solar jobs represented 38 percent of Minnesota EPG employment in 2018.

Construction employment increased by nearly 340 jobs in 2018, while other industries remained relatively stable. As shown in Figure 7, the 2019 MNEER found large increases in 2018 for solar jobs (more than 340 additional jobs, for a total of 4,600 jobs).

Figure 6.

EPG Employment by Industry, 2017-18

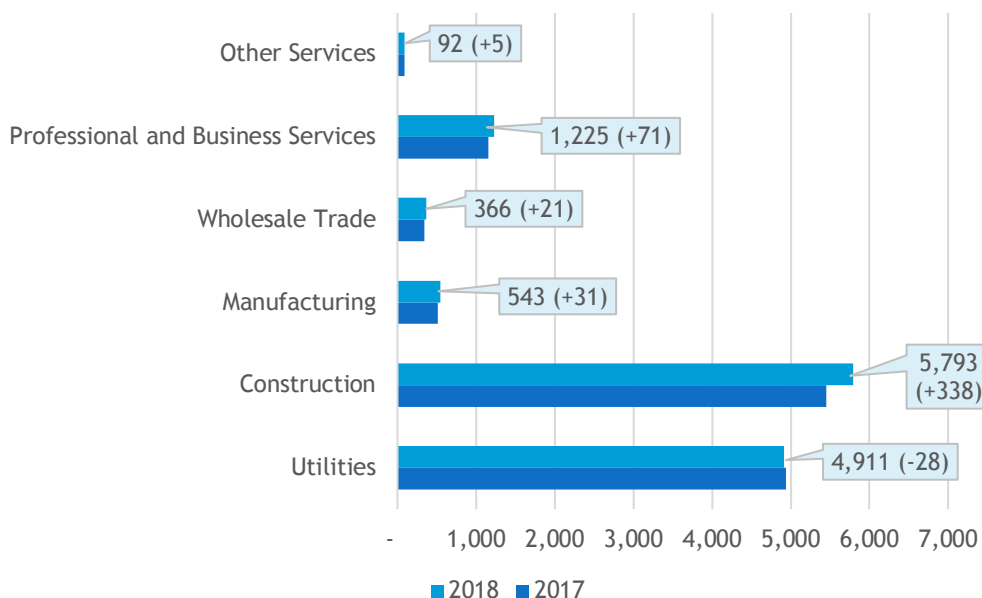
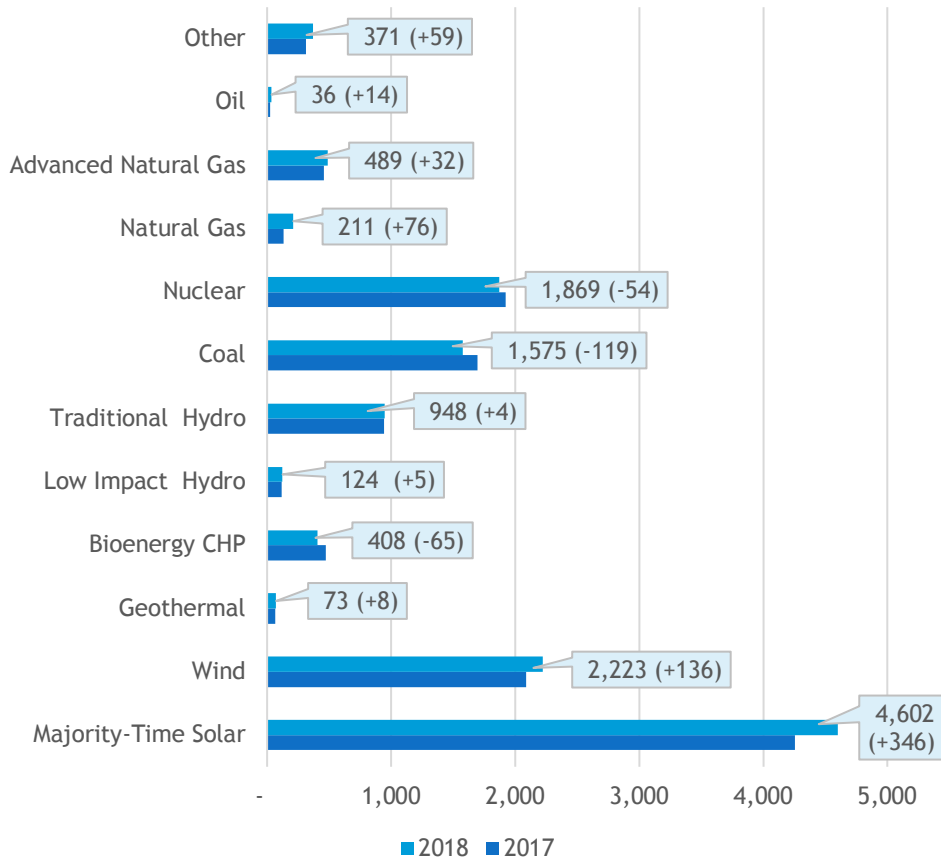
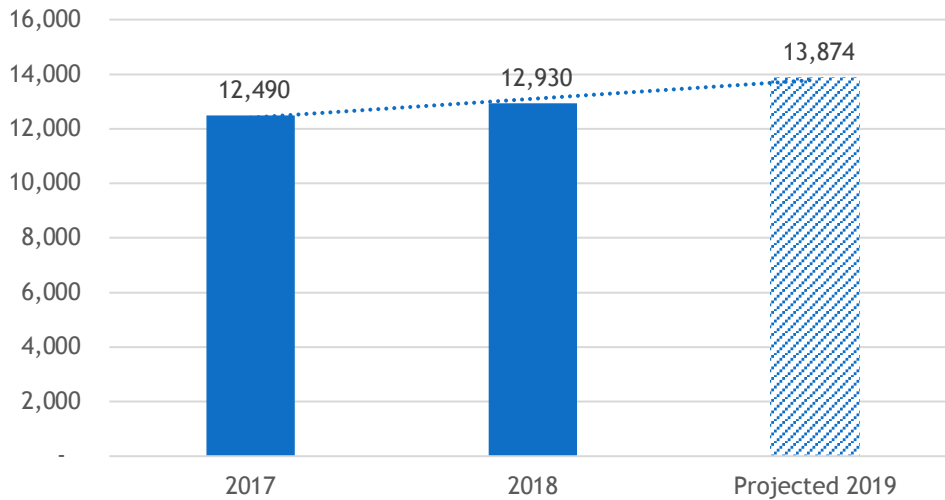


Figure 7.
EPG Employment by Detailed Technology Application, 2017-18



Employers in the EPG sector expect to see employment increase by more than seven percent in 2019, adding more than 900 new jobs.

Figure 8.
EPG Employment Growth, 2017-2019 Projected

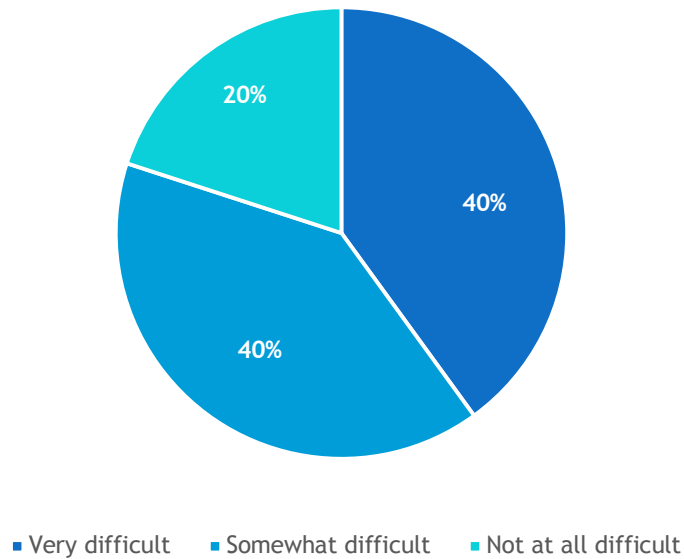


HIRING DIFFICULTY

Of the EPG companies in Minnesota that hired in 2018, 40 percent found hiring to be very difficult, while 40 percent found it to be somewhat difficult. One fifth of firms did not find hiring to be difficult at all.

Figure 9.

EPG Hiring Difficulty, 2018



The following table outlines the wage earners in Minnesota's EPG sector.

Figure 10.

EPG Sector Earners, Median Hourly Earnings

Description	US Median Wage	MN Median Wage
Petroleum Engineers	\$ 63.60	\$ 81.77
Chief Executives	\$ 88.11	\$ 68.07
Boilermakers	\$ 29.93	\$ 49.93
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$ 37.90	\$ 48.12
Electricians	\$ 26.01	\$ 43.39
Engineers, All Other	\$ 46.75	\$ 42.32
Structural Iron and Steel Workers	\$ 25.30	\$ 42.21
Plumbers, Pipefitters, and Steamfitters	\$ 25.28	\$ 42.17
Gas Compressor and Gas Pumping Station Operators	\$ 30.20	\$ 42.03
Power Distributors and Dispatchers	\$ 39.67	\$ 41.34

Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	\$ 37.70	\$ 41.03
Brickmasons and Blockmasons	\$ 23.93	\$ 39.92
Electrical Power-Line Installers and Repairers	\$ 33.36	\$ 39.59
Power Plant Operators	\$ 37.10	\$ 39.26
Sheet Metal Workers	\$ 23.07	\$ 38.49
Operating Engineers and Other Construction Equipment Operators	\$ 22.61	\$ 37.72
General and Operations Managers	\$ 48.27	\$ 37.29
Accountants and Auditors	\$ 33.34	\$ 36.81
Insulation Workers, Mechanical	\$ 21.90	\$ 36.54
Carpenters	\$ 21.71	\$ 36.22
Construction Managers	\$ 43.93	\$ 35.49
Control and Valve Installers and Repairers, Except Mechanical Door	\$ 26.85	\$ 35.15
First-Line Supervisors of Mechanics, Installers, and Repairers	\$ 31.15	\$ 34.37
Drywall and Ceiling Tile Installers	\$ 20.60	\$ 34.37
Information Security Analysts	\$ 45.92	\$ 32.89
Business Operations Specialists, All Other	\$ 33.66	\$ 32.39
Industrial Machinery Mechanics	\$ 24.69	\$ 32.32
Gas Plant Operators	\$ 33.19	\$ 31.80
Roofers	\$ 18.74	\$ 31.26
Engineering Technicians, Except Drafters, All Other	\$ 29.92	\$ 30.86
Pipelayers	\$ 18.46	\$ 30.80
Production, Planning, and Expediting Clerks	\$ 22.44	\$ 30.66
Computer Occupations, All Other	\$ 42.56	\$ 30.49
First-Line Supervisors of Production and Operating Workers	\$ 28.31	\$ 30.45
Insulation Workers, Floor, Ceiling, and Wall	\$ 17.81	\$ 29.71
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$ 22.64	\$ 29.64
Dredge Operators	\$ 20.78	\$ 28.92
Plant and System Operators, All Other	\$ 27.08	\$ 28.22
Construction Laborers	\$ 16.60	\$ 27.69
Mobile Heavy Equipment Mechanics, Except Engines	\$ 24.45	\$ 27.43
Wind Turbine Service Technicians	\$ 25.91	\$ 26.84
Drafters, All Other	\$ 24.18	\$ 24.94
Installation, Maintenance, and Repair Workers, All Other	\$ 18.65	\$ 24.41
Miscellaneous Construction and Related Workers	\$ 20.40	\$ 23.85
Maintenance and Repair Workers, General	\$ 18.11	\$ 23.71
Meter Readers, Utilities	\$ 18.86	\$ 23.54
Helpers--Electricians	\$ 14.68	\$ 23.10

Bookkeeping, Accounting, and Auditing Clerks	\$ 18.87	\$ 22.94
Solar Photovoltaic Installers	\$ 18.98	\$ 22.69
Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters	\$ 14.37	\$ 22.62
Helpers--Carpenters	\$ 14.35	\$ 22.58
Welders, Cutters, Solderers, and Brazers	\$ 19.35	\$ 22.34
Surveying and Mapping Technicians	\$ 20.84	\$ 21.50
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$ 17.11	\$ 20.31
Metal Workers and Plastic Workers, All Other	\$ 17.22	\$ 19.88
Material Moving Workers, All Other	\$ 14.23	\$ 19.80
Assemblers and Fabricators, All Other, Including Team Assemblers	\$ 14.75	\$ 19.79
Fence Erectors	\$ 16.02	\$ 18.73
Laborers and Freight, Stock, and Material Movers, Hand	\$ 13.00	\$ 18.09
Production Workers, All Other	\$ 13.89	\$ 18.00
Helpers--Installation, Maintenance, and Repair Workers	\$ 13.70	\$ 17.93

Workforce Characteristics

In 2018, the EPG sector employed fewer women than the Minnesota workforce average. However, the EPG sector is racially more diverse than the Minnesota workforce averages. Union workers made up 10 percent of Minnesota's EPG sector in 2018, one percent higher than the Minnesota private sector unionization rate. Workers, 55 and older, were underrepresented in the EPG sector compared to the workforce average.

EPG Sector — Demographics, Q4 2018

	EPG	Minnesota Workforce Averages	National Workforce Averages
Male	70%	50%	53%
Female	30%	50%	47%
Hispanic or Latino	14%	5%	17%
Not Hispanic or Latino	86%	95%	83%
American Indian or Alaska Native	1%	1%	1%
Asian	7%	5%	6%
Black or African American	8%	6%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	70%	86%	78%
Two or more races	12%	2%	2%
Veterans	10%	9%	6%
55 and over	16%	22%	23%
Union (private sector)	10%	9%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 3 — TRANSMISSION, DISTRIBUTION AND STORAGE

Transmission, Distribution, and Storage encompasses the employment associated with constructing, operating, and maintaining this energy infrastructure. It includes workers associated with the entire network of power lines that transmit electricity from generating stations to customers, as well as activities that support power and pipeline construction, fuel distribution and transport, and the manufacture of electrical transmission equipment. However, similar to the USEER, the MNEER does not include gas station employment in this analysis.

OVERVIEW

The Transmission, Distribution, and Storage sector employed more than 23,300 workers in 2018, compared to the previous year's level of 23,200 workers. This is relatively stable employment, adding more than 140 jobs over 2018.

As shown in Figure 11, utilities jobs comprised nearly 41 percent of the Minnesota TDS sector, while construction jobs made up more than 30 percent of TDS employment in 2018. Traditional TDS jobs which include the manufacture, construction, repair and operation of traditional electrical, natural gas, and petroleum transmission and distribution systems represented 80 percent of Minnesota EPG employment in 2018.

Utilities employment increased by 142 jobs (1.5 percent) in 2018, while wholesale trade and distribution increased by 112 jobs. The remaining industry sectors declined. As shown in Figure 12, the 2019 MNEER found large increases in 2018 for Traditional TDS jobs (more than 630 additional jobs, for a total of over 18,550 jobs).

Figure 11.
TDS Employment by Industry, 2017-18

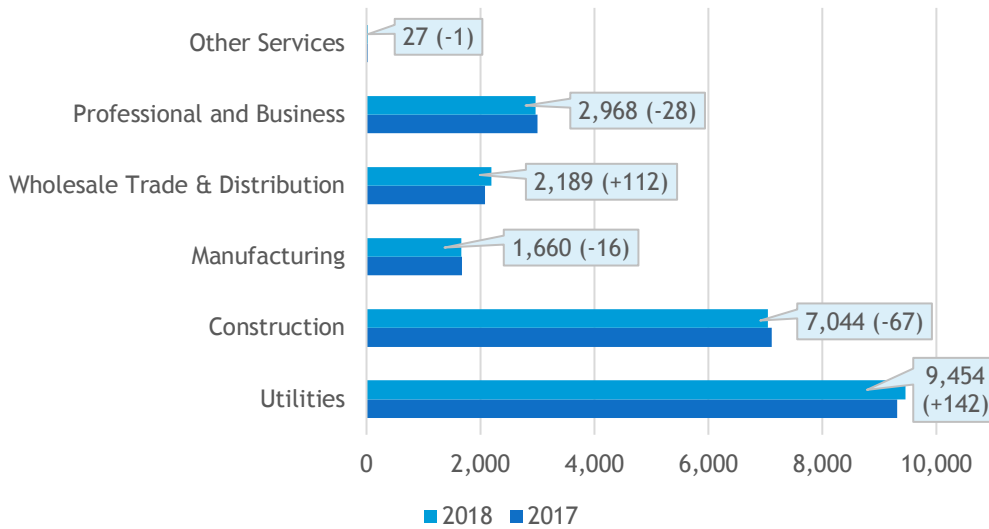
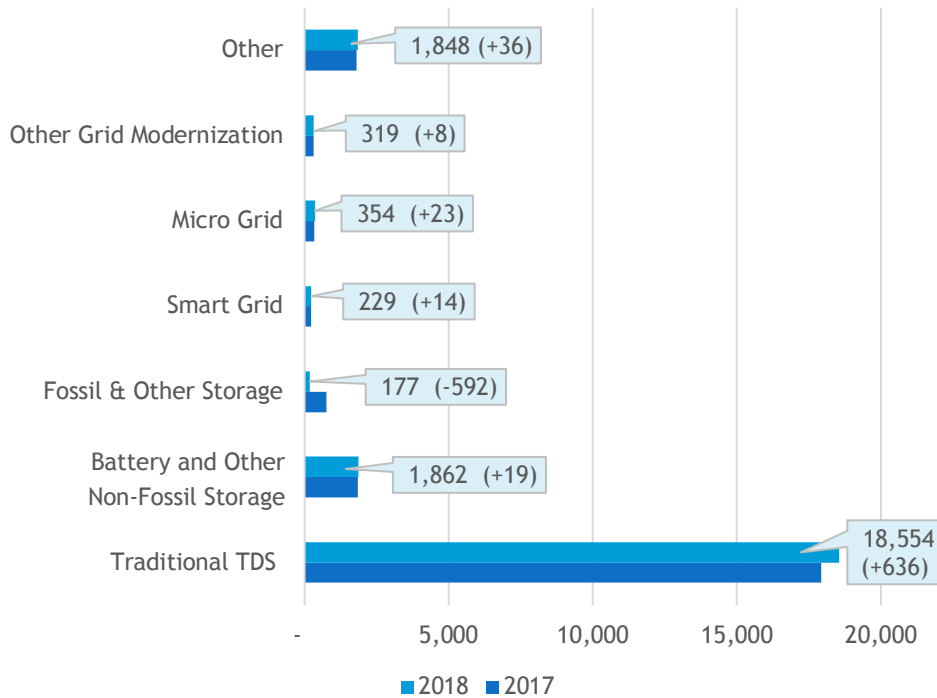
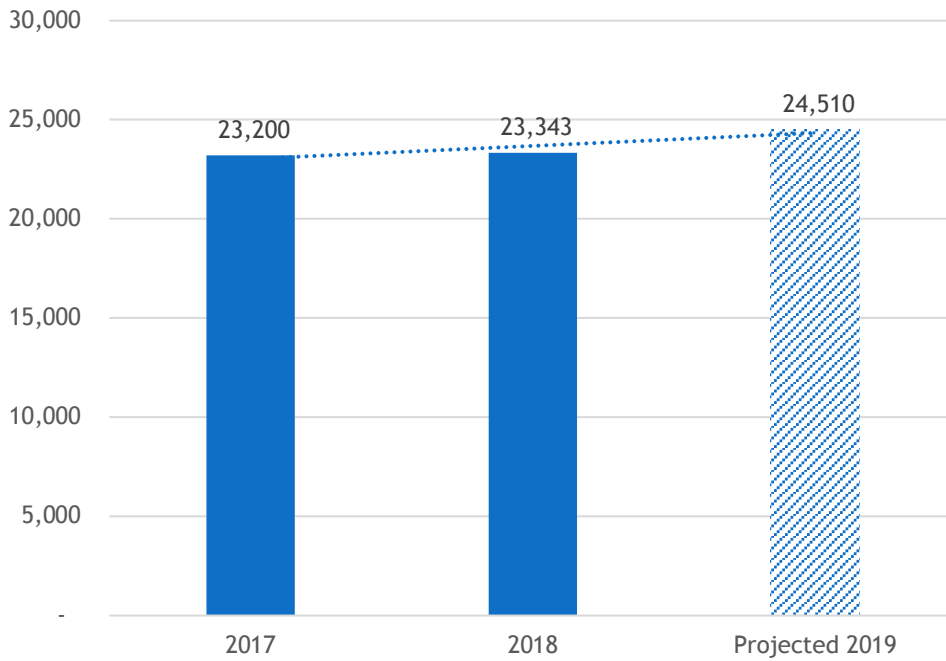


Figure 12.
TDS Employment by Detailed Technology Application, 2017-18



Employers in the TDS sector expect to see employment increase by five percent in 2019, adding nearly 1,200 new jobs.

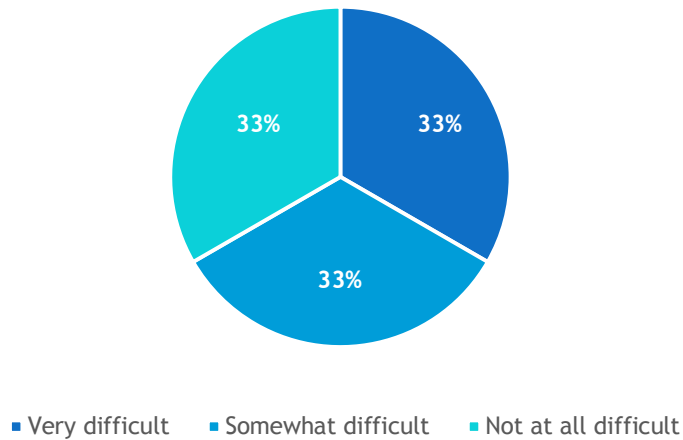
Figure 13.
TDS Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the TDS companies in Minnesota that hired in 2018, one third found hiring to be very difficult, one third found it to be somewhat difficult, and one third did not find hiring to be difficult at all.

Figure 14.
TDS Hiring Difficulty, 2018



The following table outlines the wage earners in Minnesota's TDS sector.

Figure 15.
TDS Sector Earners, Median Hourly Earnings

Description	US Median Wage	MN Median Wage
Petroleum Engineers	\$ 63.60	\$ 81.77
Chief Executives	\$ 88.11	\$ 69.13
Boilermakers	\$ 29.93	\$ 52.06
Electricians	\$ 26.01	\$ 45.24
Gas Compressor and Gas Pumping Station Operators	\$ 30.20	\$ 44.92
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$ 37.90	\$ 44.74
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	\$ 37.70	\$ 44.55
Structural Iron and Steel Workers	\$ 25.30	\$ 44.01
Plumbers, Pipefitters, and Steamfitters	\$ 25.28	\$ 43.97
Construction Managers	\$ 43.93	\$ 41.82
Brickmasons and Blockmasons	\$ 23.93	\$ 41.62
Power Distributors and Dispatchers	\$ 39.67	\$ 40.73
Sheet Metal Workers	\$ 23.07	\$ 40.13
Electrical Power-Line Installers and Repairers	\$ 33.36	\$ 39.59
Operating Engineers and Other Construction Equipment Operators	\$ 22.61	\$ 39.33
Power Plant Operators	\$ 37.10	\$ 39.26
Insulation Workers, Mechanical	\$ 21.90	\$ 38.09
General and Operations Managers	\$ 48.27	\$ 37.87
Carpenters	\$ 21.71	\$ 37.76
Drywall and Ceiling Tile Installers	\$ 20.60	\$ 35.83
Control and Valve Installers and Repairers, Except Mechanical Door	\$ 26.85	\$ 35.42
Roofers	\$ 18.74	\$ 32.60
Industrial Machinery Mechanics	\$ 24.69	\$ 32.57
Mobile Heavy Equipment Mechanics, Except Engines	\$ 24.45	\$ 32.52
Accountants and Auditors	\$ 33.34	\$ 32.15
Pipelayers	\$ 18.46	\$ 32.11
Gas Plant Operators	\$ 33.19	\$ 31.80
Insulation Workers, Floor, Ceiling, and Wall	\$ 17.81	\$ 30.98
Dredge Operators	\$ 20.78	\$ 30.91
First-Line Supervisors of Mechanics, Installers, and Repairers	\$ 31.15	\$ 30.14
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$ 22.64	\$ 29.87
Construction Laborers	\$ 16.60	\$ 28.87

First-Line Supervisors of Production and Operating Workers	\$ 28.31	\$ 28.04
Production, Planning, and Expediting Clerks	\$ 22.44	\$ 28.01
Plant and System Operators, All Other	\$ 27.08	\$ 27.80
Welders, Cutters, Solderers, and Brazers	\$ 19.35	\$ 27.17
Installation, Maintenance, and Repair Workers, All Other	\$ 18.65	\$ 24.60
Metal Workers and Plastic Workers, All Other	\$ 17.22	\$ 24.17
Maintenance and Repair Workers, General	\$ 18.11	\$ 23.89
Meter Readers, Utilities	\$ 18.86	\$ 23.54
Miscellaneous Construction and Related Workers	\$ 20.40	\$ 23.45
Helpers--Electricians	\$ 14.68	\$ 22.92
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	\$ 14.37	\$ 22.43
Helpers--Carpenters	\$ 14.35	\$ 22.40
Bookkeeping, Accounting, and Auditing Clerks	\$ 18.87	\$ 21.75
Material Moving Workers, All Other	\$ 14.23	\$ 21.16
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$ 17.11	\$ 19.94
Laborers and Freight, Stock, and Material Movers, Hand	\$ 13.00	\$ 19.33
Fence Erectors	\$ 16.02	\$ 18.41
Helpers--Installation, Maintenance, and Repair Workers	\$ 13.70	\$ 18.07
Assemblers and Fabricators, All Other, Including Team Assemblers	\$ 14.75	\$ 17.60
Production Workers, All Other	\$ 13.89	\$ 15.71

Workforce Characteristics

In 2018, the TDS sector employed fewer women than the Minnesota workforce average. However, the TDS sector is racially more diverse than the Minnesota workforce averages. The sector is also more unionized than the Minnesota private sector average. Workers 55 and older were under-represented in the TDS sector compared to the Minnesota workforce average.

TDS Sector — Demographics, Q4 2018

	TDS	Minnesota Workforce Averages	National Workforce Averages
Male	76%	50%	53%
Female	24%	50%	47%
Hispanic or Latino	14%	5%	17%
Not Hispanic or Latino	86%	95%	83%
American Indian or Alaska Native	2%	1%	1%
Asian	6%	5%	6%
Black or African American	8%	6%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	71%	86%	78%
Two or more races	12%	2%	2%
Veterans	9%	9%	6%
55 and over	19%	22%	23%
Union (Private Sector)	15%	9%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 4 — ENERGY EFFICIENCY

Energy Efficiency employment covers both the production and installation of energy-saving products and the provision of services that reduce end-use energy consumption. These jobs, as specified in the current survey, include the manufacture of ENERGY STAR®-labeled products, as well as building design and contracting services that provide insulation, improve natural lighting, and reduce overall energy consumption across homes and businesses.

OVERVIEW

The Energy Efficiency (EE) sector employed nearly 46,200 workers in 2018, compared to the previous year's level of 44,859 workers. This represents a jump in employment of 3%, adding more than 1,330 jobs over 2018. As shown in Figure 13, construction jobs comprised 62 percent of the Minnesota EE sector, while professional and business services jobs made up more than 16 percent of EE employment in 2018.

When analyzed by subtechnology in Figure 14, High Efficiency HVAC & Renewable Heating and Cooling jobs represented the largest sector with 29 percent of Minnesota EE employment in 2018, while Energy STAR® & Efficient Lighting made up 27 percent of the Minnesota EE workforce.

Construction employment increased by almost 830 jobs in 2018, while professional and business services increased by 220 jobs. As shown in Figure 14, the 2019 MNEER found large increases in 2018 for Energy STAR® & Efficient Lighting jobs (nearly 490 additional jobs, for a total of almost 12,450 jobs), and Traditional HVAC (more than 460 additional jobs, for a total of about 8,560 jobs).

Figure 16.
Energy Efficiency Employment by Industry, 2017-18

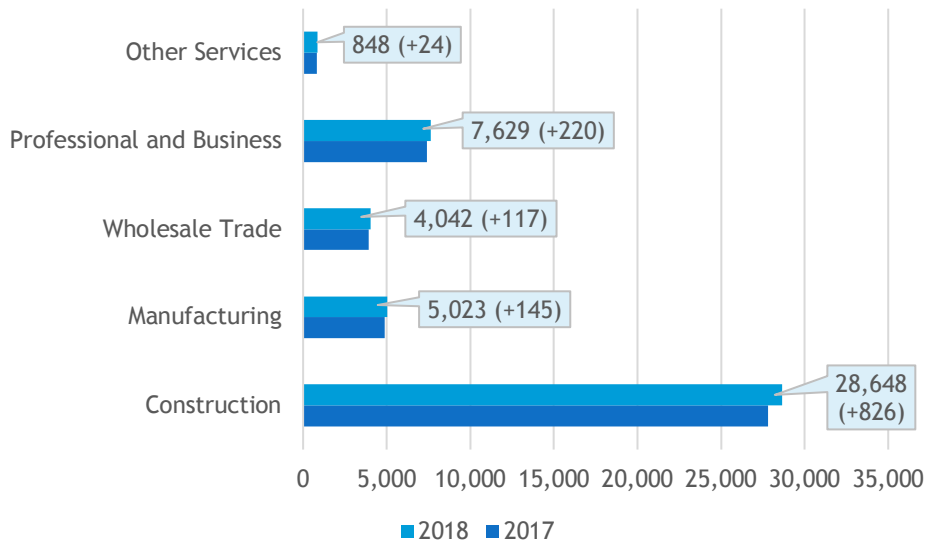
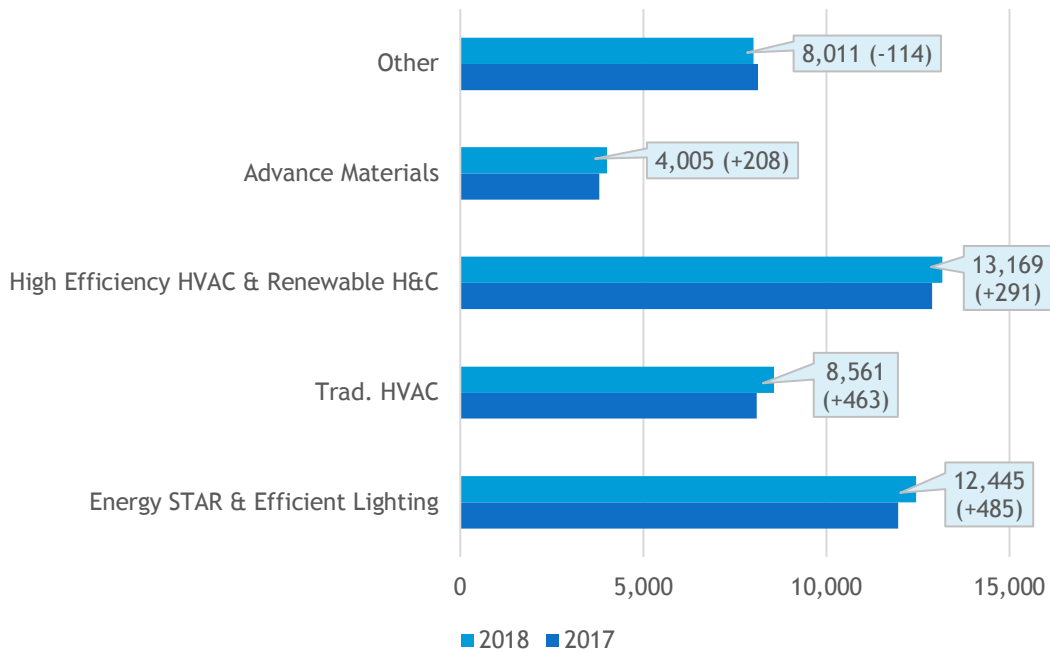


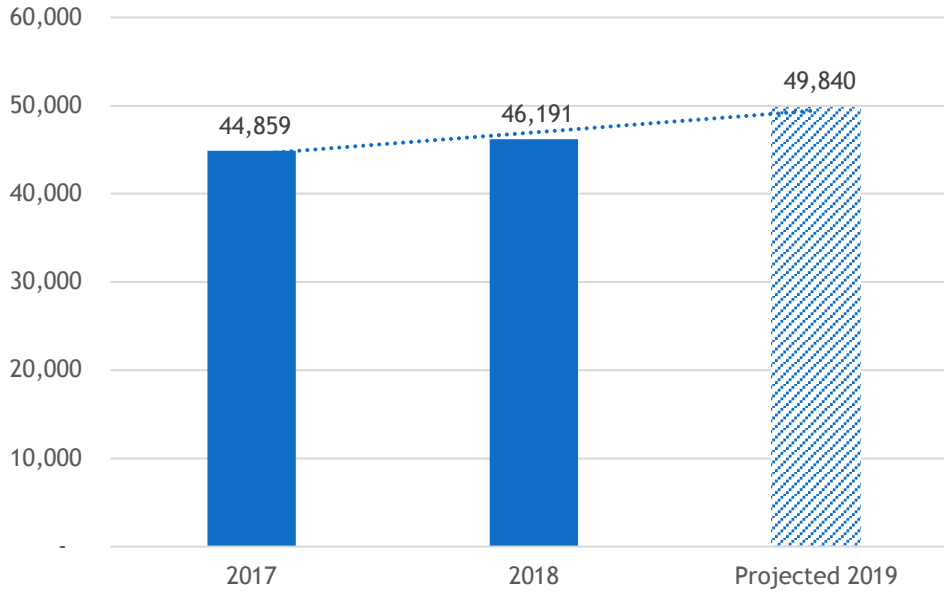
Figure 17.
Energy Efficiency Employment by Detailed Technology Application, 2017-18



Employers in the EE sector expect to see employment increase by nearly 8 percent in 2019, adding approximately 3,600 new jobs.

Figure 18.

Energy Efficiency Employment Growth, 2017-2019 Projected

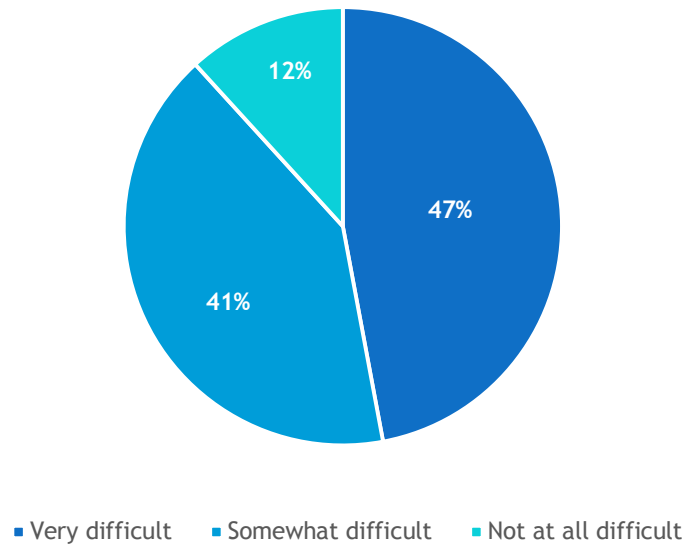


HIRING DIFFICULTY

Of the EE companies in Minnesota that hired in 2018, 47 percent found hiring to be very difficult, while 41 percent found it to be somewhat difficult. Only 12 percent of firms did not find hiring to be difficult at all.

Figure 19.

Energy Efficiency Hiring Difficulty, 2018



The following table outlines the wage earners in Minnesota's EE sector.

Figure 20.

EE Sector Earners, Median Hourly Earnings

Description	US Median Wage	MN Median Wage
Chief Executives	\$ 88.11	\$ 64.00
Boilermakers	\$ 29.93	\$ 48.64
Power Distributors and Dispatchers	\$ 39.67	\$ 45.62
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$ 37.90	\$ 44.40
Electricians	\$ 26.01	\$ 42.27
Engineers, All Other	\$ 46.75	\$ 41.54
Structural Iron and Steel Workers	\$ 25.30	\$ 41.12
Plumbers, Pipefitters, and Steamfitters	\$ 25.28	\$ 41.08
Gas Compressor and Gas Pumping Station Operators	\$ 30.20	\$ 40.98
Brickmasons and Blockmasons	\$ 23.93	\$ 38.89
Sheet Metal Workers	\$ 23.07	\$ 37.49

Operating Engineers and Other Construction Equipment Operators	\$ 22.61	\$ 36.74
Accountants and Auditors	\$ 33.34	\$ 36.32
Insulation Workers, Mechanical	\$ 21.90	\$ 35.59
Carpenters	\$ 21.71	\$ 35.28
General and Operations Managers	\$ 48.27	\$ 35.06
Control and Valve Installers and Repairers, Except Mechanical Door	\$ 26.85	\$ 33.92
Drywall and Ceiling Tile Installers	\$ 20.60	\$ 33.48
Construction Managers	\$ 43.93	\$ 32.86
Industrial Machinery Mechanics	\$ 24.69	\$ 31.20
Plant and System Operators, All Other	\$ 27.08	\$ 31.14
Roofers	\$ 18.74	\$ 30.46
Pipelayers	\$ 18.46	\$ 30.00
First-Line Supervisors of Production and Operating Workers	\$ 28.31	\$ 29.19
Insulation Workers, Floor, Ceiling, and Wall	\$ 17.81	\$ 28.94
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$ 22.64	\$ 28.61
Business Operations Specialists, All Other	\$ 33.66	\$ 28.35
Dredge Operators	\$ 20.78	\$ 28.20
Production, Planning, and Expediting Clerks	\$ 22.44	\$ 28.16
Construction Laborers	\$ 16.60	\$ 26.98
Miscellaneous Construction and Related Workers	\$ 20.40	\$ 23.98
Installation, Maintenance, and Repair Workers, All Other	\$ 18.65	\$ 23.56
Welders, Cutters, Solderers, and Brazers	\$ 19.35	\$ 23.42
Maintenance and Repair Workers, General	\$ 18.11	\$ 22.88
Helpers--Electricians	\$ 14.68	\$ 21.27
Bookkeeping, Accounting, and Auditing Clerks	\$ 18.87	\$ 21.12
Metal Workers and Plastic Workers, All Other	\$ 17.22	\$ 20.84
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	\$ 14.37	\$ 20.82
Helpers--Carpenters	\$ 14.35	\$ 20.79
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$ 17.11	\$ 19.74
Material Moving Workers, All Other	\$ 14.23	\$ 19.31
Fence Erectors	\$ 16.02	\$ 18.83
Assemblers and Fabricators, All Other, Including Team Assemblers	\$ 14.75	\$ 18.09
Laborers and Freight, Stock, and Material Movers, Hand	\$ 13.00	\$ 17.64
Helpers--Installation, Maintenance, and Repair Workers	\$ 13.70	\$ 17.31

Workforce Characteristics

In 2018, the EE sector employed fewer women than the Minnesota workforce average. However, the EE sector was racially more diverse than the Minnesota workforce averages. Union workers made up 12 percent of the EE workforce 3 percentage points higher than the Minnesota private sector workforce average. Workers 55 and older were underrepresented in the EE sector compared to the Minnesota workforce average while veterans were one percentage point higher.

Energy Efficiency Sector — Demographics, Q4 2018

	Energy Efficiency	Minnesota Workforce Averages	National Workforce Averages
Male	76%	50%	53%
Female	24%	50%	47%
Hispanic or Latino	13%	5%	17%
Not Hispanic or Latino	87%	95%	83%
American Indian or Alaska Native	1%	1%	1%
Asian	5%	5%	6%
Black or African American	7%	6%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	75%	86%	78%
Two or more races	11%	2%	2%
Veterans	10%	9%	6%
55 and over	16%	22%	23%
Union (Private Sector)	12%	9%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 5 — MOTOR VEHICLES + COMPONENT PARTS

Though not considered a sector of the Traditional Energy industry, the Motor Vehicles and Component Parts sector, which includes cars, light-duty and heavy-duty trucks, trailers, and component parts of the foregoing, is included in this report, given both the high energy consumption of their manufacture and their contribution to end-use energy consumption.

OVERVIEW

The Motor Vehicles and Component Parts (MVCP) sector employed more than 33,350 workers in 2018, compared to the previous year's level of 32,606 workers. This represents a jump in employment of more than 2%, adding nearly 750 jobs over 2017. As shown in Figure 17, repair and maintenance jobs comprised more than 48 percent of the Minnesota MVCP sector, while wholesale trade jobs made up 29 percent of MVCP employment in 2018.

When analyzed by MVCP subtechnology in Figure 18, gasoline and diesel motor vehicle jobs represented 83 percent of Minnesota MVCP employment in 2018. Alternative fuels' vehicles employed just over 3,340 or 10% of MVCP jobs in Minnesota. Repair and maintenance employment increased by almost 370 jobs in 2018, while manufacturing employment increased by nearly 330 jobs. As shown in Figure 18, the 2019 MNEER found relatively stable employment, with increases in 2018 for electric vehicle jobs (more than 170 additional jobs), and plug-in hybrid jobs (almost 170 additional jobs).

Figure 21.
Motor Vehicles Employment by Industry, 2017-18

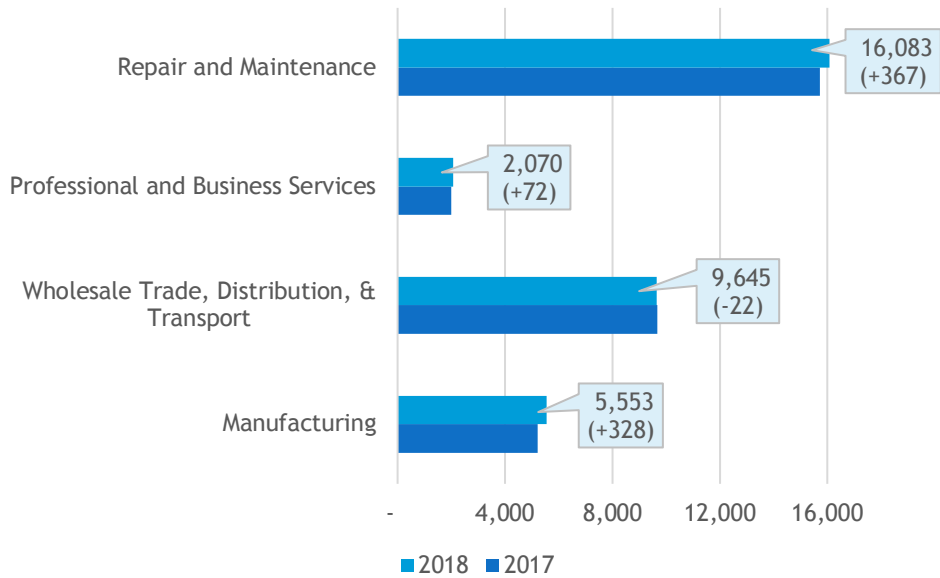
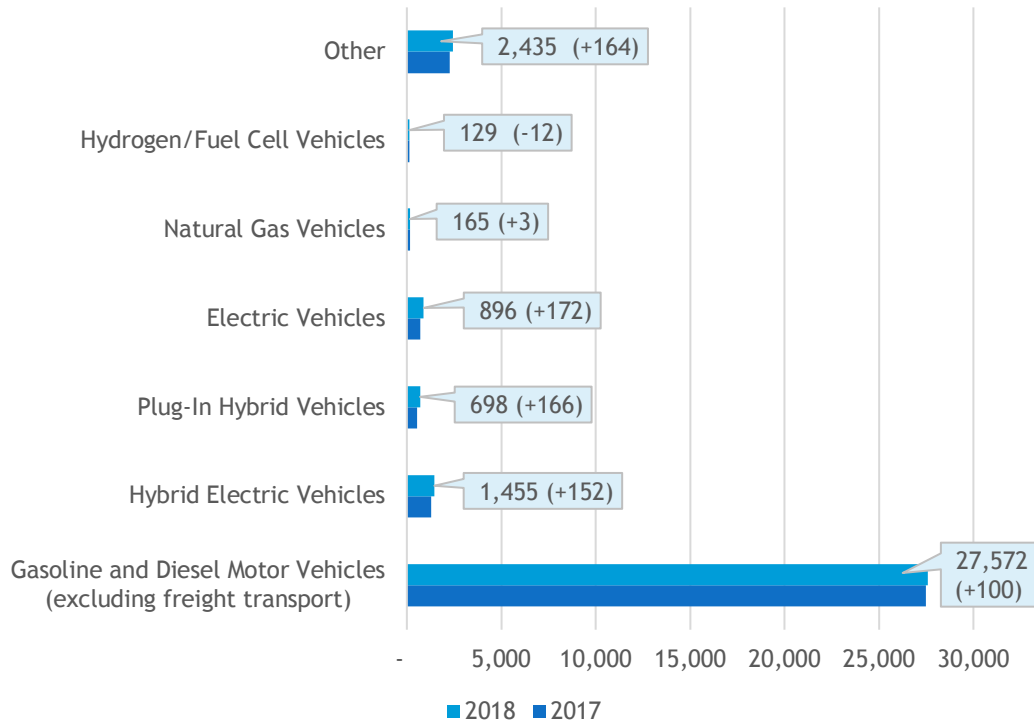


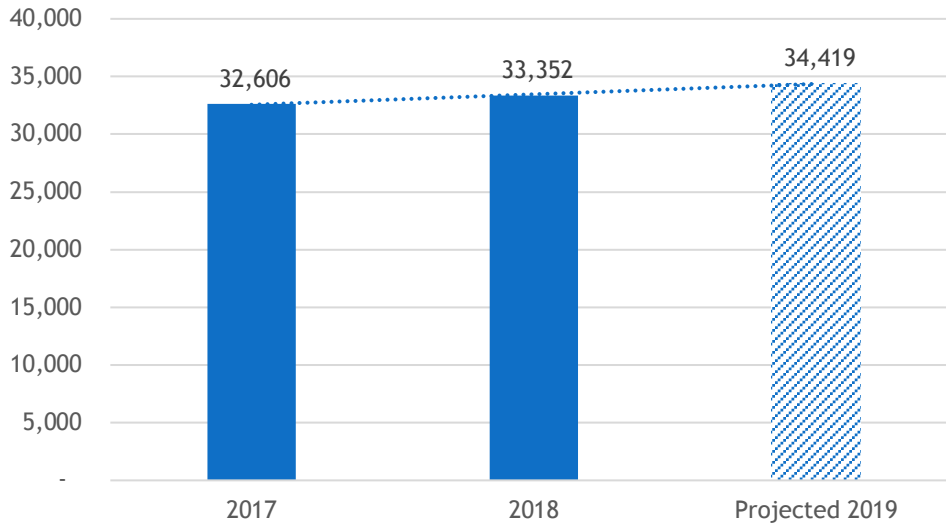
Figure 22.
Motor Vehicles Employment by Detailed Technology Application, 2017-18



Employers in the MVCP sector expect to see employment increase by more than three percent in 2019, adding more than 1,000 new jobs for a total of nearly 34,420 jobs.

Figure 23.

MVCP Employment Growth, 2017-2019 Projected

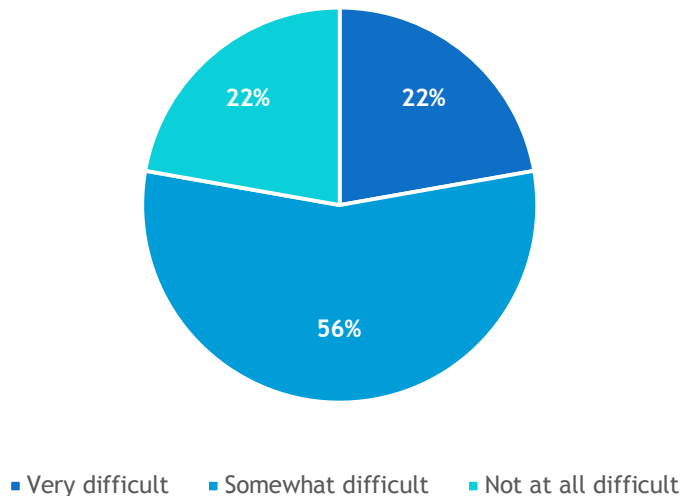


HIRING DIFFICULTY

Of the MVCP companies in Minnesota that hired in 2018, 22 percent found hiring to be very difficult, while 56 percent found it to be somewhat difficult. 22 percent of firms did not find hiring to be difficult at all.

Figure 24.

Motor Vehicles Hiring Difficulty, 2018



Workforce Characteristics

In 2018, the MVCP sector employed fewer women than the Minnesota workforce average. However, the MVCP sector was racially more diverse than the Minnesota workforce averages. This sector was also 5 percentage points more unionized than the Minnesota private sector workforce average. Workers 55 and older were underrepresented in the MVCP sector compared to the Minnesota workforce average.

Motor Vehicles and Component Parts Sector — Demographics, Q4 2018

	Motor Vehicles	Minnesota Workforce Averages	National Workforce Averages
Male	77%	50%	53%
Female	23%	50%	47%
Hispanic or Latino	13%	5%	17%
Not Hispanic or Latino	87%	95%	83%
American Indian or Alaska Native	1%	1%	1%
Asian	4%	5%	6%
Black or African American	8%	6%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	75%	86%	78%
Two or more races	11%	2%	2%
Veterans	10%	9%	6%
55 and over	19%	22%	23%
Union (Private Sector)	14%	9%	6%

Source: EMSI and Bureau of Labor Statistics 2018

Background

ENERGY AND EMPLOYMENT REPORT — 2019

The 2019 Minnesota Energy and Employment Report (MNEER) methodology can be found on the US Energy and Employment Report website at: <https://www.usenergyjobs.org/>

The executive summary and Appendices, which include the methodology, can be found directly at:

<https://www.usenergyjobs.org/2019-report>

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