

2019 New Hampshire Clean Energy & Employment Report

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CLEAN ENERGY AND EMPLOYMENT REPORT — 2019

SUMMARY

The 2019 New Hampshire Clean Energy and Employment Report (NHCEER) analyzes the following five sectors of the New Hampshire economy:

- Clean Fuels;
- Clean Electric Power Generation;
- Clean Transmission, Distribution, and Storage;
- Energy Efficiency; and
- Alternative Transportation.

Based on a comprehensive analysis of employer data collected in the fourth quarter of 2018, the 2019 NHCEER finds that Clean Fuels, Clean Electric Power Generation, Clean Transmission, Distribution, and Storage, Energy Efficiency, and Alternative Transportation sectors in 2018 employed approximately 17,000 New Hampshire residents or 2.9 percent of a workforce of nearly 671 thousand. Employment in these sectors increased in 2018 by 3.7 percent from the previous year, adding 607 net new jobs, more than 11 percent of all new jobs in the state.¹

The Clean Fuels sector employed 540, an increase of 35 or 6.9 percent in 2018.

- Woody Biomass added the most jobs in the Clean Fuels sector, with 28 new positions, an increase of seven percent to over 400 jobs.
- Wholesale Trade grew the most among industry sectors, adding more than 60 workers between 2017 and 2018.

The Clean Electric Power Generation sector employed 3,547 workers in NH remaining at the same level as 2017 (3,545 workers). Job losses in Solar generation were offset by gains Bioenergy and CHP.

- Solar energy firms employed 890 employees who spent the majority of their time on solar.² The number of majority-time Solar jobs in New Hampshire decreased by just over 160 or 15.3 percent.
- Bioenergy and Combined Heat and Power Generation employs more than 550 workers in NH, an increase of nearly 40 jobs.
- Professional and Business Services added more than 130 jobs, a growth rate of over 10 percent between 2017 and 2018.

¹ 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. Clean energy employment growth in the period between the second quarter of 2017 and the second quarter of 2018 represented 11.2 percent of all employment growth in New Hampshire. Unless otherwise stated, all increases or decreases described in this report for 2018 (whether whole numbers or percentages) are relative to 2017.

² The Solar Foundation 2018 Solar Jobs Census.

Clean Transmission, Distribution, and Storage employed 317 New Hampshire residents. This represents an increase of 17 new jobs or nearly six percent, compared to a nine percent increase nationally.

- Construction was the strongest industry in the Clean Transmission, Distribution, and Storage sector in New Hampshire, making up more than 84 percent of the sector.

Energy Efficiency employed 11,733 New Hampshire residents, in whole or in part, in the design, installation, and manufacture of Energy Efficiency products and services, adding nearly 400 net jobs in 2018 (nearly four percent).

- More than 7,000 of New Hampshire's Energy Efficiency jobs are in the Construction industry, a decrease of more than 60 jobs from 2017.
- Energy Efficiency Professional and Business Services, Other Services, Wholesale Trade, and Manufacturing all gained jobs, with Professional and Business Services increasing by more than 240 jobs, Other Services increasing by almost 140 jobs, Wholesale Trade increasing by 56 jobs, and Manufacturing increasing by nearly 30 jobs.
- Over 1,600 New Hampshire residents are now employed in Manufacturing jobs, producing ENERGY STAR® certified products and energy efficient building materials.

Alternative Transportation employed more than 850 workers, excluding automobile dealerships and retailers, adding more than 150 jobs in 2018 in New Hampshire, an increase of 22 percent.

- The repair and maintenance sector provides the largest share of this employment, making up nearly two thirds of the sector.
- Hybrid Electric Vehicles and Electric Vehicles each added more than 50 new jobs over 2017.

Hiring and Demographics

Overall, Clean Energy firms in New Hampshire anticipate 8.5 percent employment growth through 2019.

- Clean Transmission, Distribution, and Storage employers projected the highest growth rate over 2019 (10.8 percent),
- Clean Electric Power Generation (10.5 percent),
- Clean Fuels (9.5 percent),
- Alternative Transportation sector (8.2 percent),
- Energy Efficiency (7.8 percent)

Hiring difficulty exceeded the national average in New Hampshire in Clean Fuels, Energy Efficiency, and Alternative Transportation. 50, 41, and 33 percent respectively of these employers reported it was very difficult to hire new employees.

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

- Women are a smaller portion of the workforce in these sectors, ranging from 24 percent to 29 percent, compared to the overall New Hampshire economy, where women make up 51 percent of the workforce.
- A majority of these clean energy sectors saw increased self-identification of employees belonging to two or more races, surpassing New Hampshire's workforce average.
- All sectors reported Hispanic or Latino workers, Asian workers, and Black or African American workers at a higher rate than the New Hampshire workforce average.
- Veterans comprise from 12 to 13 percent of these sectors—higher than the New Hampshire average of 7 percent.
- Between 18 percent and 22 percent of this workforce is 55 years of age or older, compared to the New Hampshire average of 26 percent.
- The unionization rates for all clean energy sectors are below the New Hampshire private sector rate of 10 percent.

Conclusion

2018 marked another year in the evolution of New Hampshire's clean energy system. Despite the highest employment NH has seen in the past two decades, the Clean Energy and Energy Efficiency sectors outperform the NH economy as a whole, more than tripling the overall employment growth rate and adding 607 new jobs, representing more than 11 percent of the total 2018 state increase.

Similar to the national clean energy workforce, New Hampshire lost jobs in Majority-time Solar while gaining jobs in Energy Efficiency and Alternative Transportation. New Hampshire Clean Electric Power Generation remained flat overall compared to a decrease of nearly 2 percent nationally.

New Hampshire added over 30 Clean Fuels' jobs, primarily in the Wholesale Trade industry sector.

New Hampshire's Clean Transmission, Distribution and Storage workforce grew by six percent, lower than the national average which jumped nine percent in 2018, mostly due to battery storage employment increases in Nevada.

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 past year, New Hampshire has added nearly 400 Energy Efficiency jobs. More than 240 of these were in the production, installation, and servicing of ENERGY STAR & Efficiency Lighting and energy efficient activity at Traditional HVAC firms in the state.

CHAPTER 1 — CLEAN FUELS

Clean Fuels employment encompasses work related to fuel processing (Manufacturing), Wholesale Trade of Clean Fuels, Professional and Business Services, and repair and maintenance (Other Services). Workers across both the Forestry and Agriculture sectors who support fuel production with biodiesels, and fuel wood are also included in the fuel employment data.

OVERVIEW

The Clean Fuels sector employed 540 workers in 2018, compared to the previous year's level of 505 workers. This represents a jump in employment of nearly 7 percent. As shown in Figure 1, Wholesale Trade jobs comprised more than 44 percent of the New Hampshire Clean Fuels sector, while Manufacturing made up 26 percent and Agriculture and Forestry jobs comprised 24 percent of Clean Fuels employment in 2018. When analyzed by detailed technology in Figure 2, Woody Biomass jobs represented over 75 percent of New Hampshire Clean Fuels employment in 2018.

Wholesale Trade employment increased by more than 60 jobs in 2018, while professional and business services employment added only eight new jobs in 2018. As shown in Figure 2, the 2019 NHCEER found a moderate increase in 2018 for Woody Biomass jobs (nearly 30 additional jobs), and flat growth for Other Biofuels jobs.

Figure 1.
Clean Fuels Employment by Industry, 2017-18

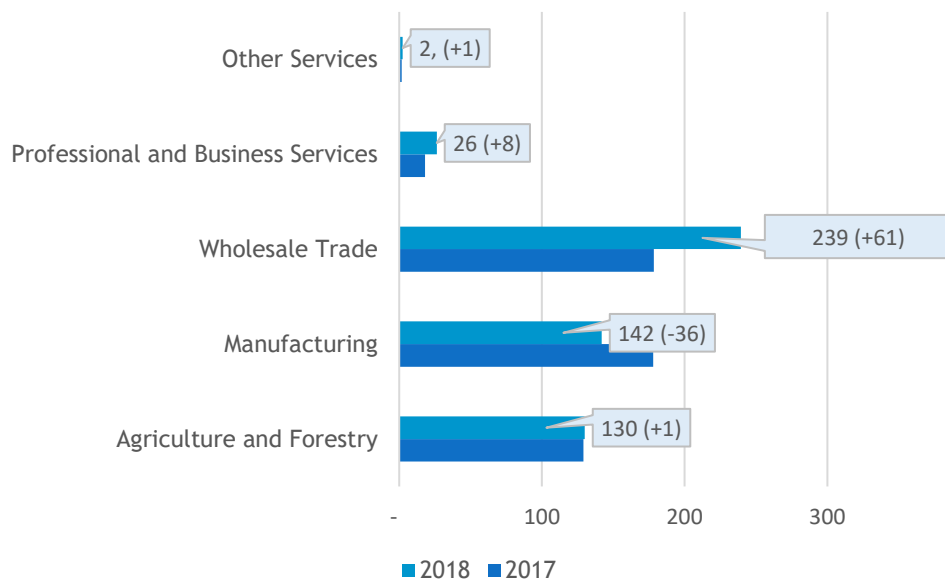
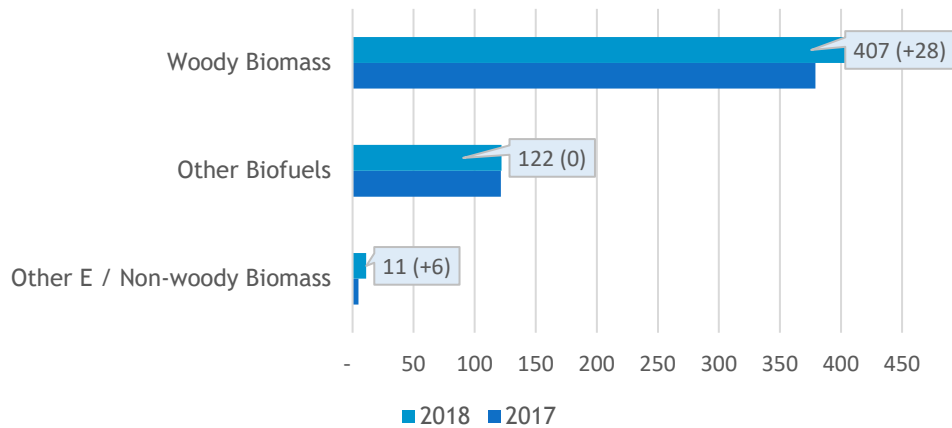
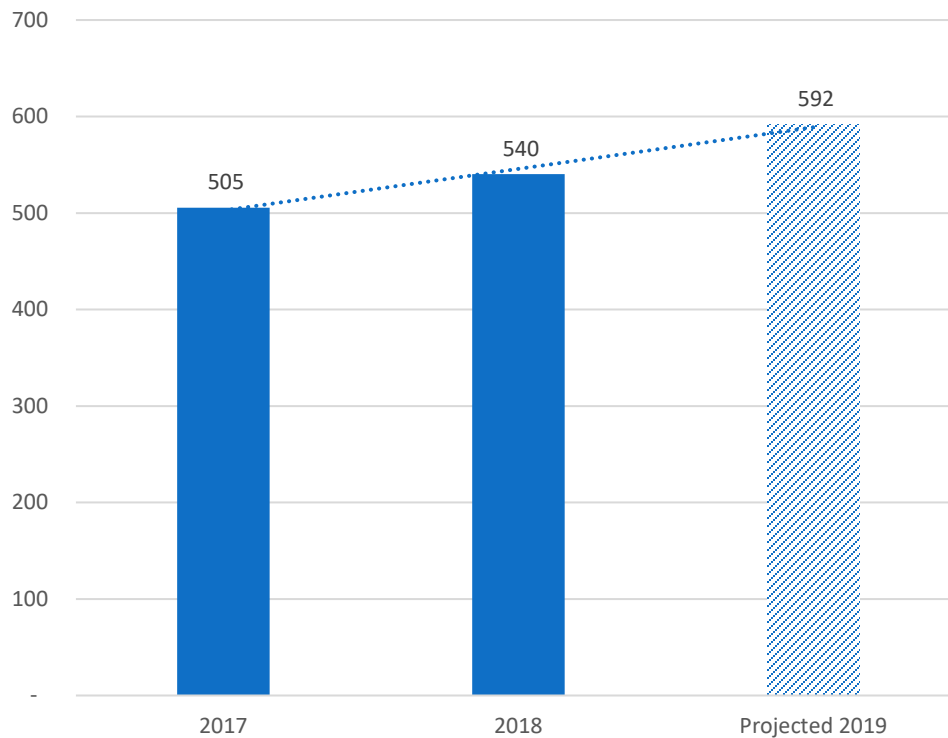


Figure 2.
Clean Fuels Employment by Detailed Technology Application, 2017-18



Employers in the Clean Fuels sector expected to see employment increase by more than nine percent in 2019, adding more than 50 new jobs for a total of 592 jobs.

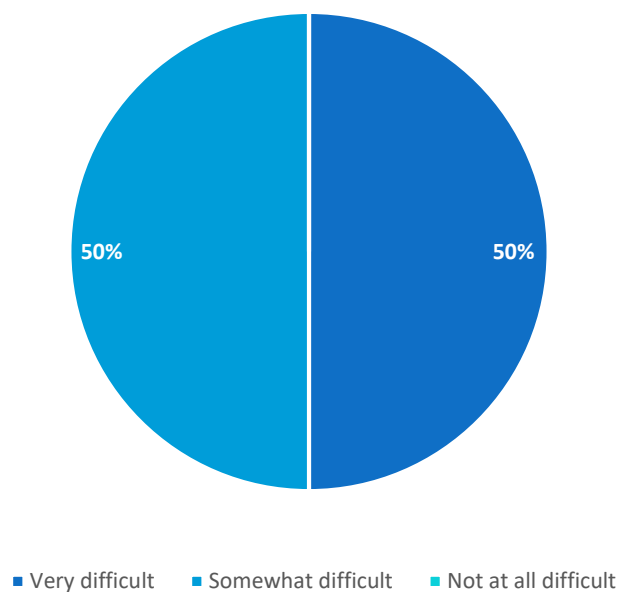
Figure 3.
Clean Fuels Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the Clean Fuels companies in New Hampshire that hired in 2018, half found hiring to be very difficult, while the other half found hiring to be somewhat difficult.

Figure 4.
Clean Fuels Hiring Difficulty



Workforce Characteristics

In 2018, the Clean Fuels sector employed fewer women workers than the New Hampshire workforce average. On average, the Clean Fuels sector employed more Hispanic or Latino, Black or African American, and Asian workers when compared to the state economy. Union workers represented two percent of New Hampshire's Clean Fuels industry in 2018, one fifth of the New Hampshire private sector average. Veteran employment exceeded the New Hampshire workforce average.

Clean Fuels Sector – Demographics, Q4 2018

	Clean Fuels	New Hampshire Workforce Averages	National Workforce Averages
Male	75%	49%	53%
Female	25%	51%	47%
Hispanic or Latino	10%	4%	17%
Not Hispanic or Latino	90%	96%	83%
American Indian or Alaska Native	1%	>1%	1%
Asian	5%	3%	6%
Black or African American	3%	2%	12%
Native Hawaiian or other Pacific Islander	>1%	>1%	>1%
White	85%	90%	78%
Two or more races	5%	1%	2%
Veterans	13%	7%	6%
55 and over	22%	26%	23%
Union (private sector)	2%	10%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 2 — CLEAN ELECTRIC POWER GENERATION

Clean Electric Power Generation (CEPG) covers all utility and non-utility employment across clean electric generating technologies, including 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 Clean Electric Power Generation sector employed 3,547 workers in 2018, nearly identical to the previous year's level of 3,545 workers. Professional and Business Services jobs comprised 39 percent of the New Hampshire CEPG sector, followed by Manufacturing at 24 percent, and Construction at 22 percent. Utilities jobs made up nearly seven percent of CEPG employment in 2018. Wind jobs represented nearly 33 percent of New Hampshire CEPG employment in 2018, and majority-time Solar jobs represented 25 percent.

Professional and Business Services employment increased by more than 130 jobs in 2018, while Wholesale Trade (-12 percent or 29 jobs), Manufacturing (-9 percent or 82 jobs), and Construction (-2 percent or 19 jobs). As shown in Figure 7, the 2019 NHCEER found a moderate increase in 2018 for Bioenergy & CHP jobs (nearly 40 additional jobs, for a total of 560 jobs). Majority-time Solar experienced a decrease of 160 jobs from 2017 to 2018.

Figure 5.
CEPG Employment by Industry, 2017-18

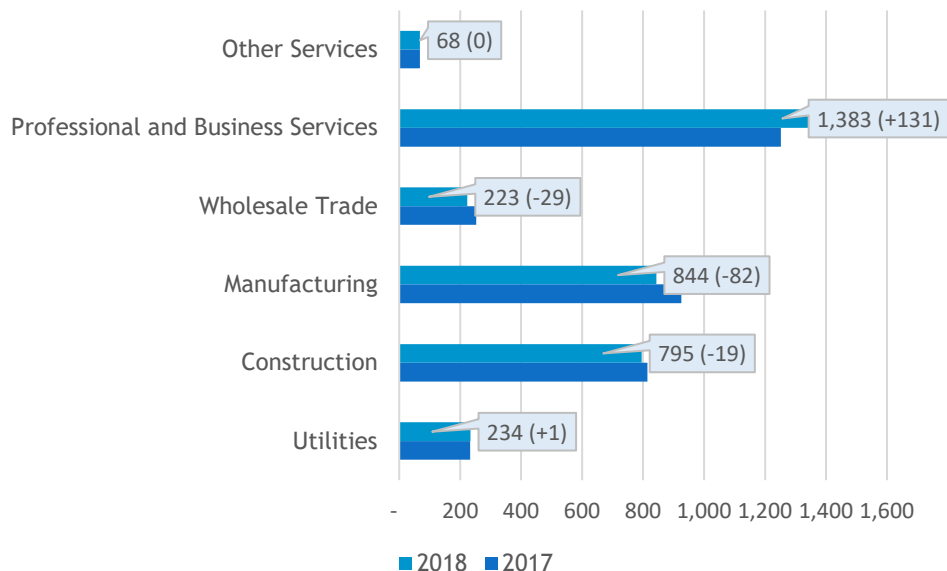
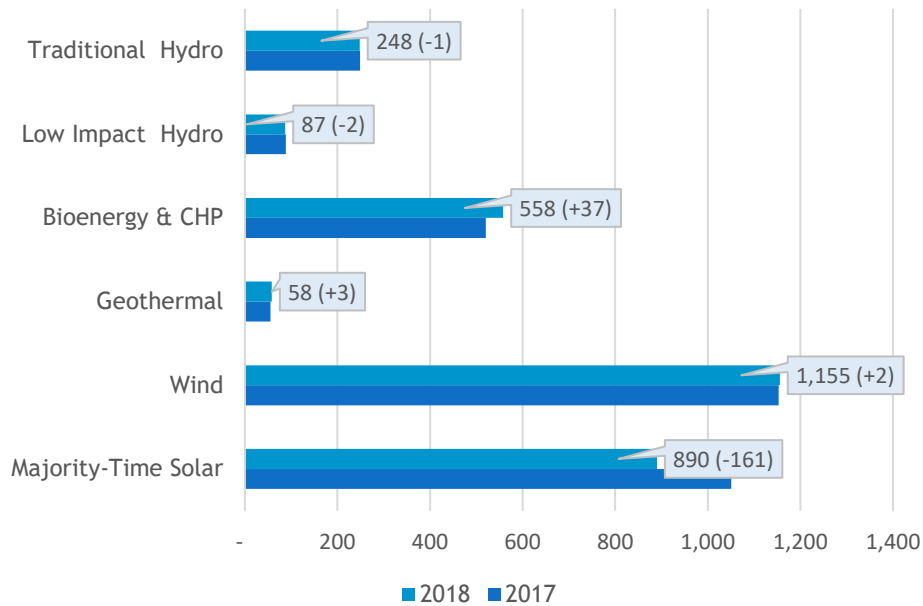
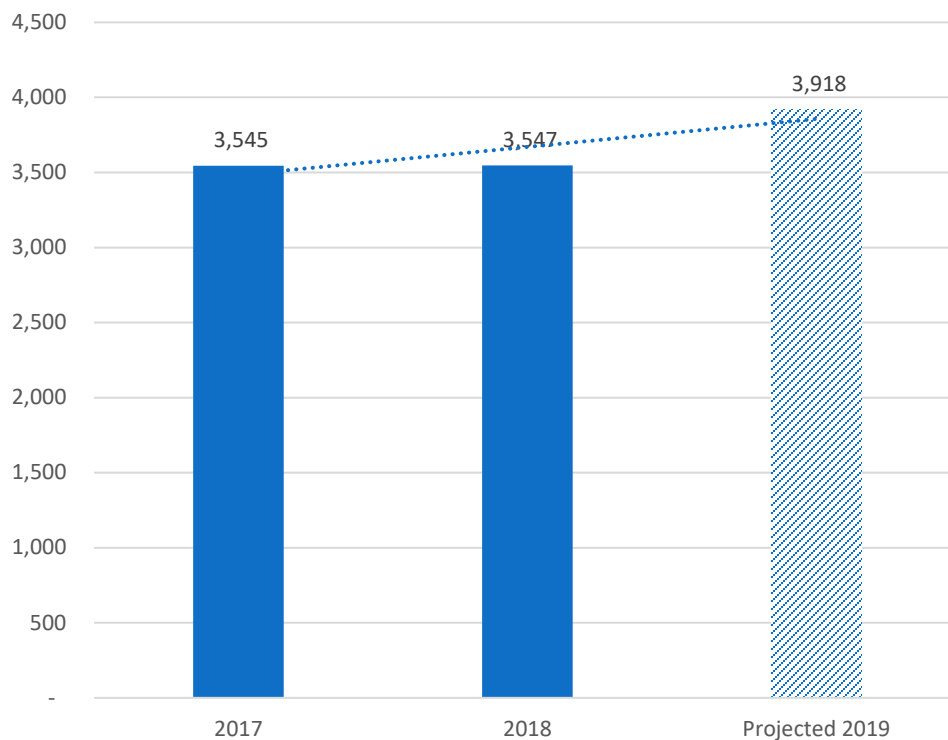


Figure 6.
CEPG Employment by Detailed Technology Application, 2017-18



Employers in the CEPG sector expected to see employment increase by almost 11 percent in 2019, adding more than 370 new jobs.

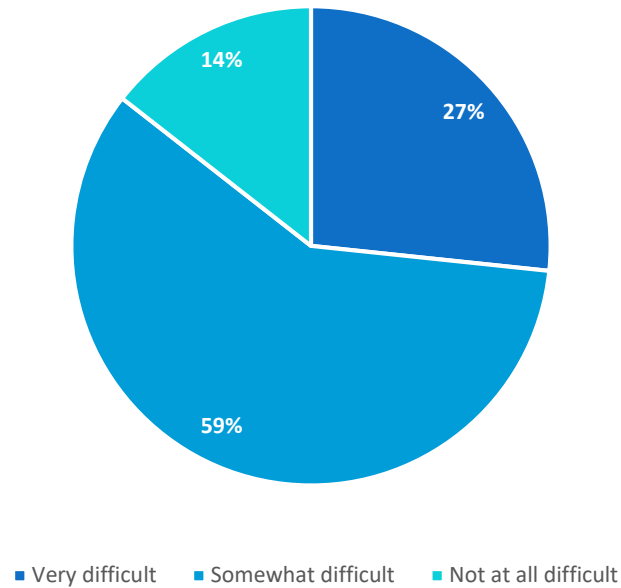
Figure 7.
CEPG Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the CEPG companies in New Hampshire that hired in 2018, 27 percent found hiring to be very difficult, while 59 percent found it to be somewhat difficult. 14 percent of firms did not find hiring to be difficult at all.

Figure 8.
CEPG Hiring Difficulty



Workforce Characteristics

In 2018, the CEPG sector employed fewer women workers than the New Hampshire workforce average. However, the CEPG sector employed more Hispanic or Latino workers, Asian workers, Black or African American workers and workers of two or more races than the New Hampshire workforce averages. Union workers made up four percent of New Hampshire's CEPG sector in 2018, six percentage points lower than the New Hampshire private sector unionization rate. Workers 55 and older were underrepresented in the CEPG sector compared to the workforce average.

CEPG Sector – Demographics, Q4 2018

	CEPG	New Hampshire Workforce Averages	National Workforce Averages
Male	71%	49%	53%
Female	29%	51%	47%
Hispanic or Latino	13%	4%	17%
Not Hispanic or Latino	87%	96%	83%
American Indian or Alaska Native	1%	>1%	1%
Asian	8%	3%	6%
Black or African American	5%	2%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	80%	90%	78%
Two or more races	6%	1%	2%
Veterans	12%	7%	6%
55 and over	18%	26%	23%
Union (private sector)	4%	10%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 3 — CLEAN TRANSMISSION, DISTRIBUTION AND STORAGE

Clean Transmission, Distribution, and Storage (CTDS) encompasses the employment associated with constructing, operating, and maintaining components of the energy infrastructure. It includes workers associated with grid technologies and battery and non-fossil storage and the manufacture of electrical transmission equipment.

OVERVIEW

The Clean Transmission, Distribution, and Storage sector employed nearly 320 workers in 2018, compared to the previous year's level of 300 workers. This represents an almost six percent increase in employment, adding nearly 20 jobs over 2018.

As shown in Figure 11, Construction jobs comprised more than 84 percent of the New Hampshire CTDS sector, while Manufacturing jobs made up nearly seven percent of CTDS employment in 2018. Micro Grid CTDS jobs represented 31 percent of New Hampshire CTDS employment in 2018, followed by Other Grid Modernization (27 percent), and Battery and non-fossil storage (27 percent).

Construction employment increased by nearly 70 jobs (33 percent) in 2018, while other segments of the value chain declined. As shown in Figure 12, the 2019 NHCEER found moderate increases in 2018 across all detailed technologies.

Figure 9.
CTDS Employment by Industry, 2017-18

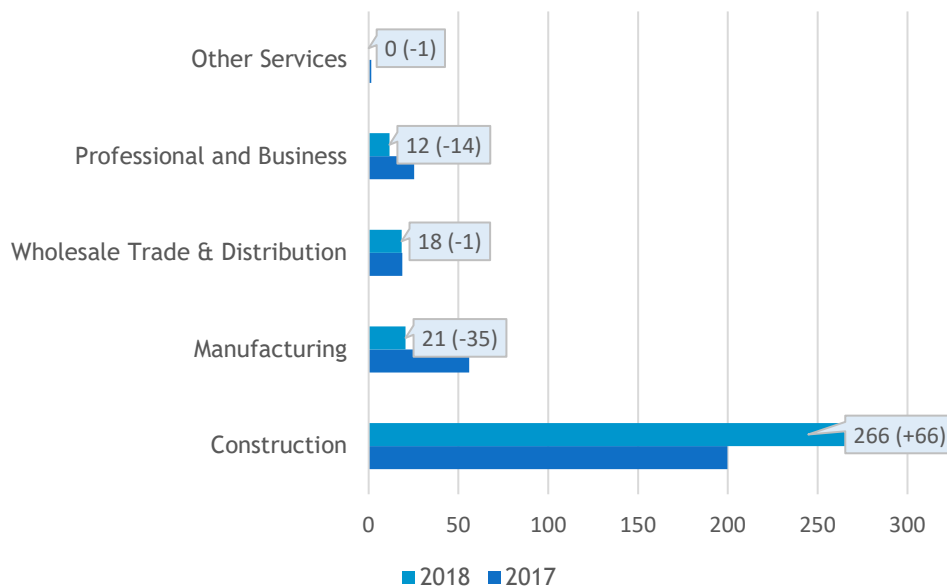
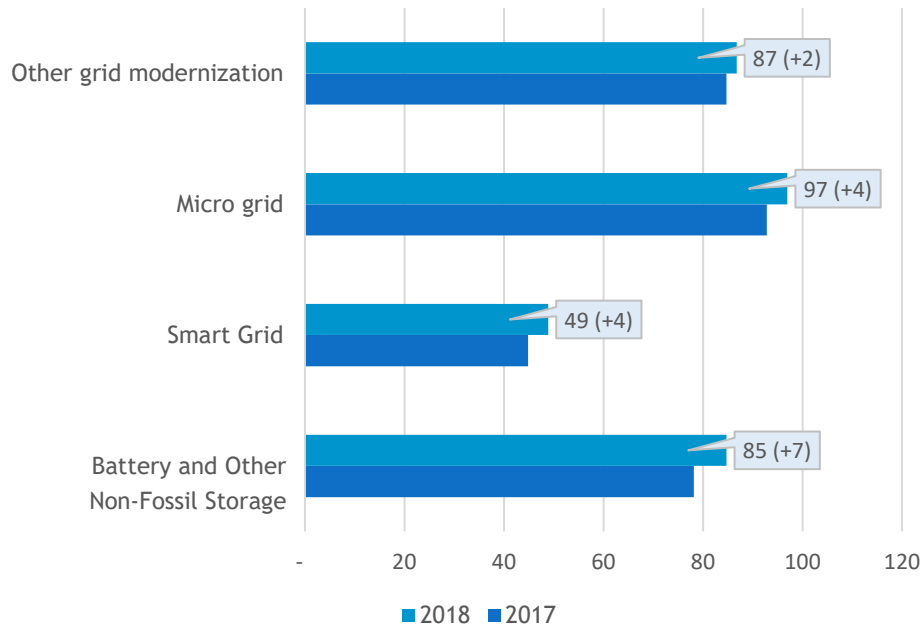


Figure 10.

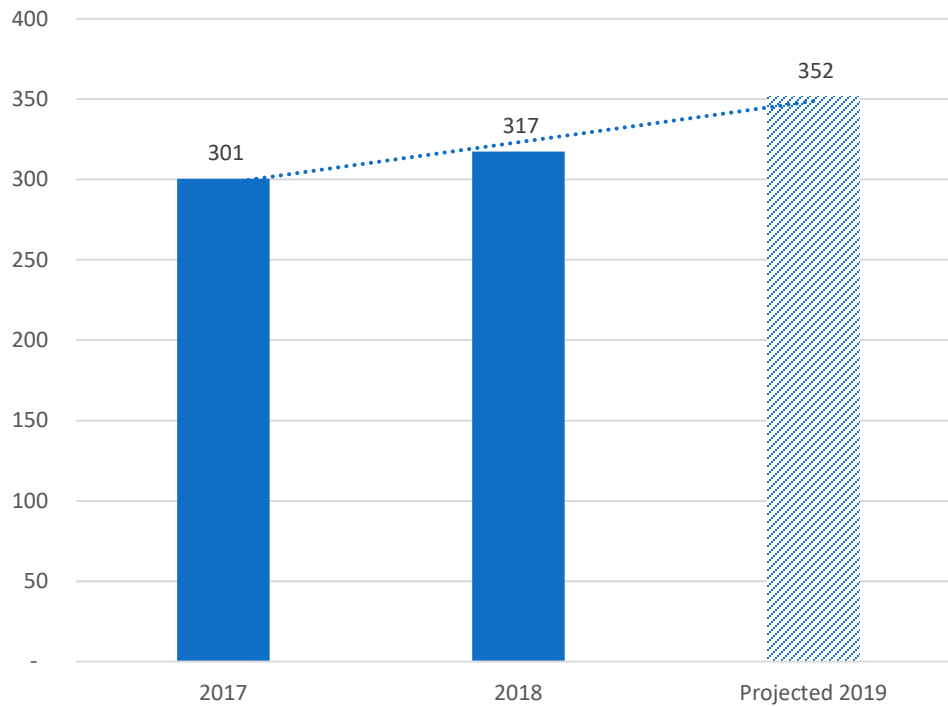
CTDS Employment by Detailed Technology Application, 2017-18



Employers in the CTDS sector expected to see employment increase by nearly 11 percent in 2019, adding more than 30 new jobs.

Figure 11.

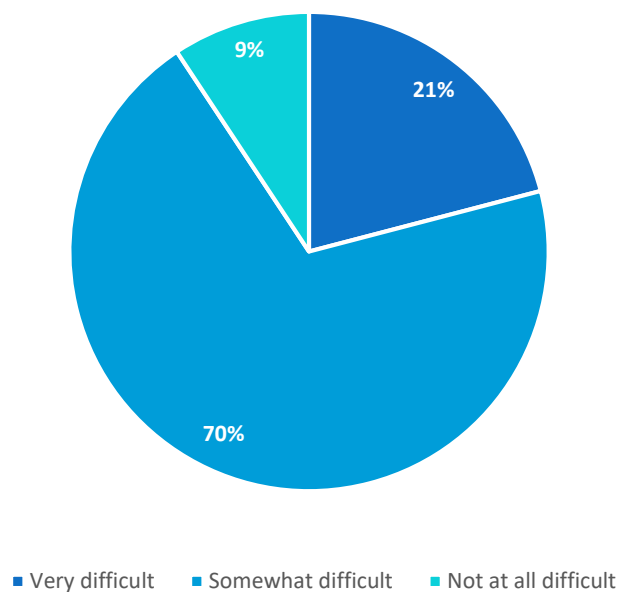
CTDS Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the CTDS companies in New Hampshire that hired in 2018, 21 percent found hiring to be very difficult, 70 percent found it to be somewhat difficult, and nine percent did not find hiring to be difficult at all.

Figure 12.
CTDS Hiring Difficulty



Workforce Characteristics

In 2018, the CTDS sector employed fewer women, but more Hispanic or Latino workers, Asian workers, and Black or African American workers than the New Hampshire workforce as a whole. The sector is slightly less unionized than the New Hampshire private sector average. Workers 55 and older were underrepresented in the CTDS sector compared to the New Hampshire workforce average.

CTDS Sector – Demographics, Q4 2018

	CTDS	New Hampshire Workforce Averages	National Workforce Averages
Male	75%	49%	53%
Female	25%	51%	47%
Hispanic or Latino	13%	4%	17%
Not Hispanic or Latino	87%	96%	83%
American Indian or Alaska Native	1%	>1%	1%
Asian	7%	3%	6%
Black or African American	5%	2%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	81%	90%	78%
Two or more races	6%	1%	2%
Veterans	12%	7%	6%
55 and over	20%	26%	23%
Union (Private Sector)	9%	10%	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 more than 11,730 workers in 2018, compared to the previous year's level of almost 11,340 workers. This represents a jump in employment of four percent, adding nearly 400 jobs over 2018. As shown in Figure 13, Construction jobs comprised 60 percent of the New Hampshire EE sector in 2018.

When analyzed by detailed technology in Figure 14, High efficiency HVAC & Renewable Heating & Cooling jobs represented the largest sector with more than 41 percent of New Hampshire EE employment in 2018, while ENERGY STAR® & Efficient Lighting made up nearly 25 percent of the New Hampshire EE workforce.

Professional and business services employment increased by more than 240 jobs in 2018, while other services increased by 130 jobs. As shown in Figure 14, the 2019 NHCEER found large increases in 2018 for ENERGY STAR® & Efficient Lighting jobs (more than 120 additional jobs, for a total of more than 2,900 jobs), Traditional HVAC (almost 130 additional jobs, for a total of almost 2,300 jobs), and Advanced Materials (more than 70 jobs, for a total of more than 460 jobs).

Figure 13.
Energy Efficiency Employment by Industry, 2017-18

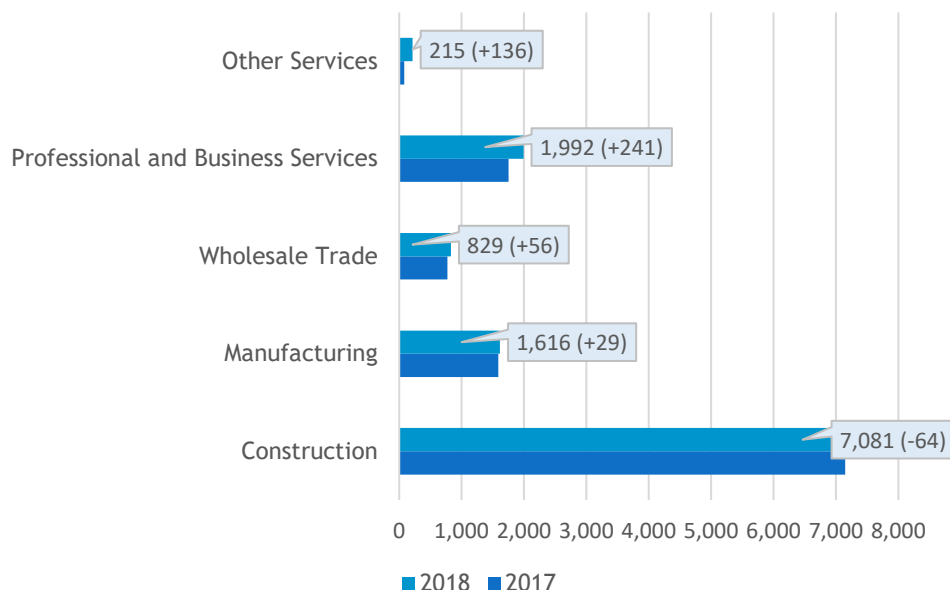
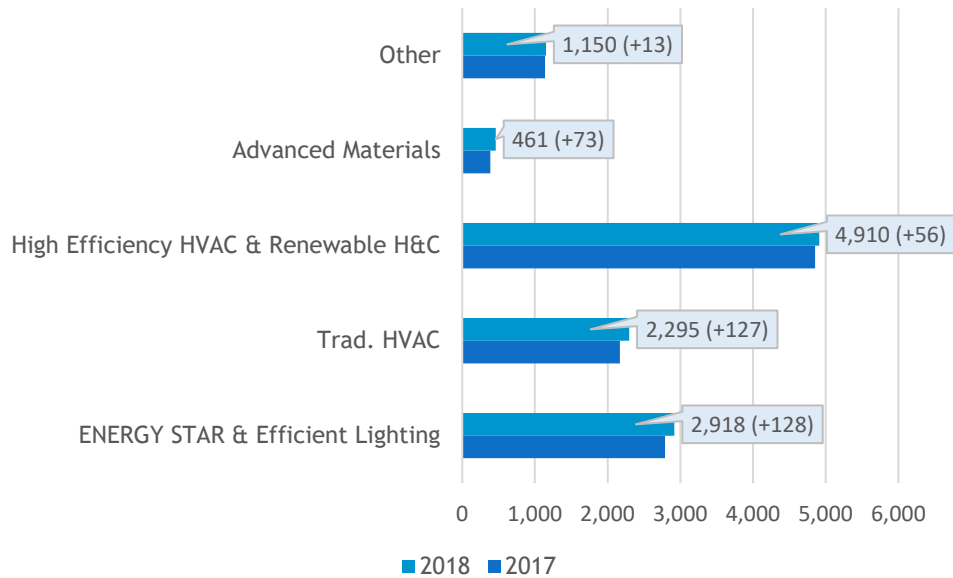


Figure 14.

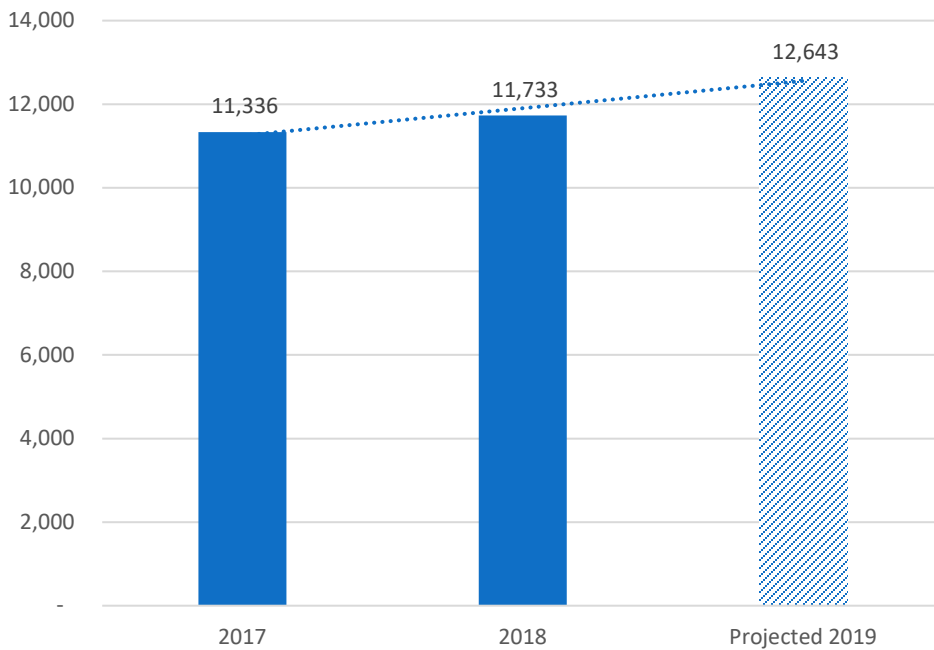
Energy Efficiency Employment by Detailed Technology Application, 2017-18



Employers in the EE sector expected to see employment increase by nearly eight percent in 2019, adding approximately 900 new jobs.

Figure 15.

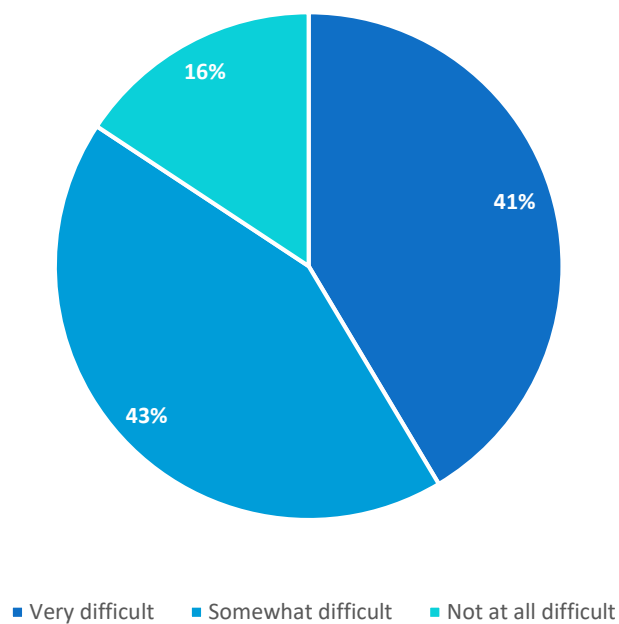
Energy Efficiency Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the EE companies in New Hampshire that hired in 2018, 41 percent found hiring to be very difficult, while 43 percent found it to be somewhat difficult. Only 16 percent of firms did not find hiring to be difficult at all.

Figure 16.
Energy Efficiency Hiring Difficulty



Workforce Characteristics

In 2018, the EE sector employed fewer women workers than the New Hampshire workforce average. However, the EE sector employed more Hispanic or Latino workers, Asian workers, Black or African American workers, and workers of two or more races than the New Hampshire workforce averages. Union workers made up six percent of the EE workforce four percentage points lower than the New Hampshire private sector workforce average. Workers 55 and older were underrepresented in the EE sector compared to the New Hampshire workforce average while Veterans were six percentage points higher.

Energy Efficiency Sector – Demographics, Q4 2018

	Energy Efficiency	New Hampshire Workforce Averages	National Workforce Averages
Male	75%	49%	53%
Female	25%	51%	47%
Hispanic or Latino	12%	4%	17%
Not Hispanic or Latino	88%	96%	83%
American Indian or Alaska Native	1%	>1%	1%
Asian	5%	3%	6%
Black or African American	4%	2%	12%
Native Hawaiian or other Pacific Islander	1%	>1%	>1%
White	85%	90%	78%
Two or more races	4%	1%	2%
Veterans	13%	7%	6%
55 and over	18%	26%	23%
Union (Private Sector)	6%	10%	6%

Source: EMSI and Bureau of Labor Statistics 2018

CHAPTER 5 — ALTERNATIVE TRANSPORTATION

Though not considered a sector of the Traditional Energy industry, the Alternative Transportation (AT) sector, which includes cars, light-duty and heavy-duty trucks, 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 Alternative Transportation sector employed nearly 860 workers in 2018, compared to the previous year's level of nearly 700 workers. This represents a jump in employment of more than 22%, adding more than 150 jobs over 2017. As shown in Figure 17, Repair and Maintenance jobs represented nearly 65 percent of the New Hampshire AT sector, while Wholesale Trade, Distribution, & Transport jobs made up 17 percent of AT employment in 2018.

When analyzed by AT detailed technology in Figure 18, hybrid electric vehicle jobs represented 44 percent of New Hampshire AT employment in 2018. Repair and maintenance employment increased by almost 100 jobs in 2018, while professional and business services employment increased by 30 jobs. As shown in Figure 18, the 2019 NHCEER found increases in 2018 for Hybrid Electric Vehicles (54 additional jobs), Electric Vehicle jobs (52 additional jobs), and Plug-in Hybrid jobs (49 additional jobs).

Figure 17.

Alternative Transportation Employment by Industry, 2017-18

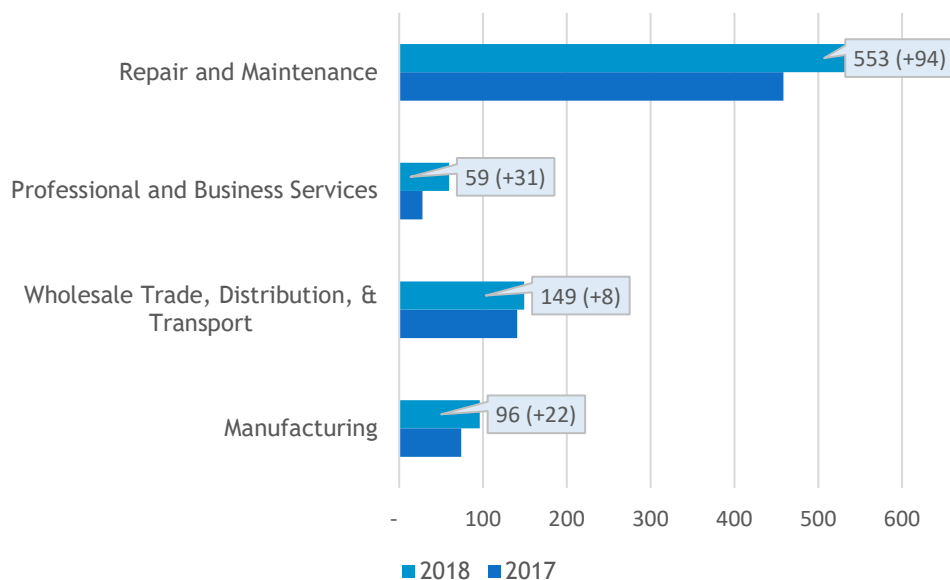
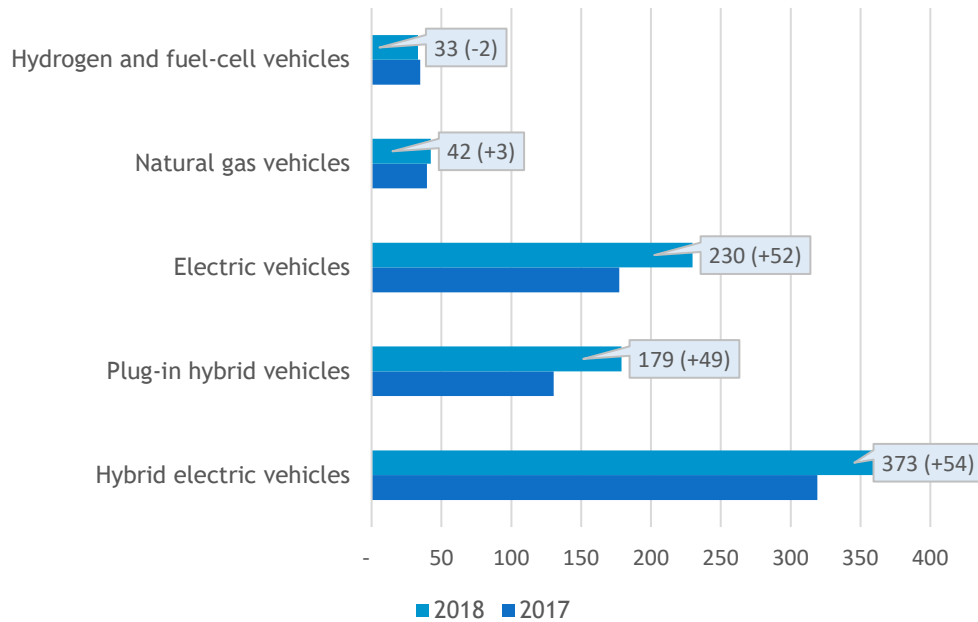
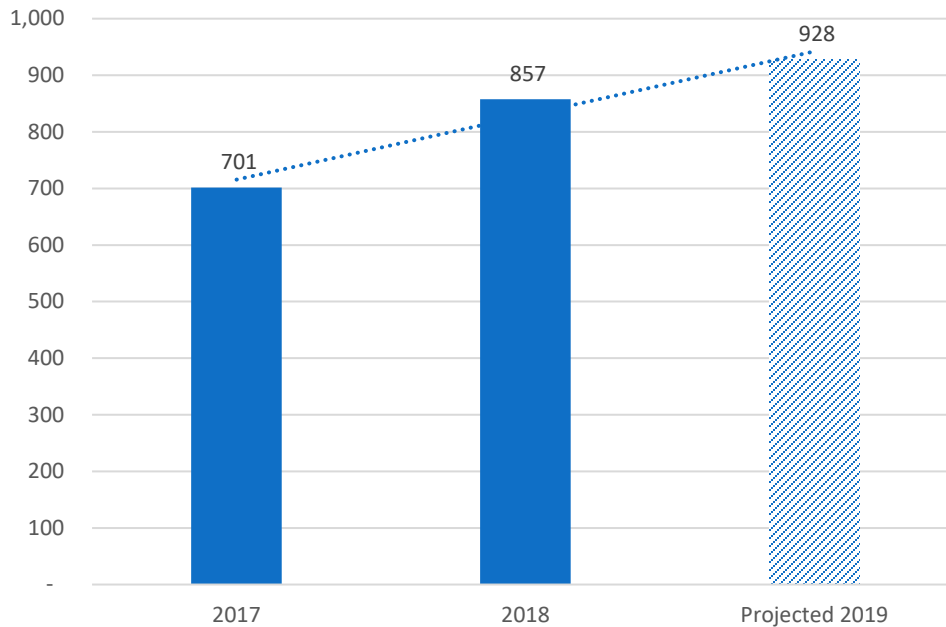


Figure 18.
Alternative Transportation Employment by Detailed Technology
Application, 2017-18



Employers in the AT sector expected to see employment increase by more than eight percent in 2019, adding more than 70 new jobs for a total of nearly 930 jobs.

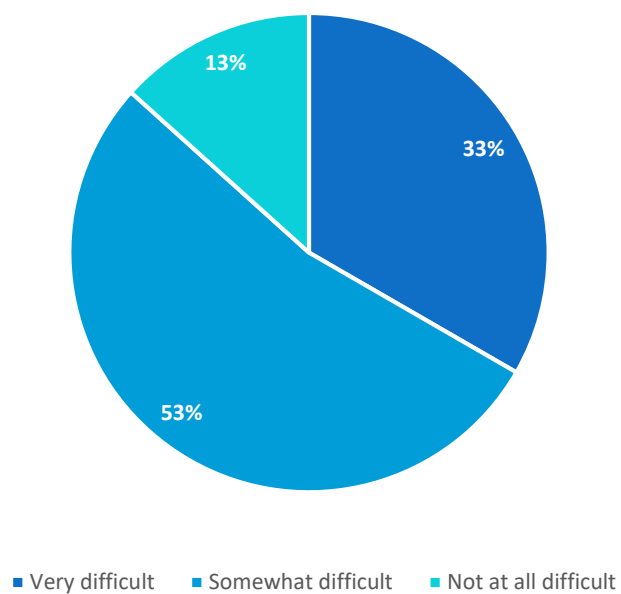
Figure 19.
Alternative Transportation Employment Growth, 2017-2019 Projected



HIRING DIFFICULTY

Of the AT companies in New Hampshire that hired in 2018, one third found hiring to be very difficult, while 53 percent found it to be somewhat difficult. Thirteen percent of firms did not find hiring to be difficult at all.

Figure 20.
Alternative Transportation Hiring Difficulty



Workforce Characteristics

In 2018, the AT sector employed fewer women workers than the New Hampshire workforce average. However, the AT sector employed more Hispanic or Latino workers, Asian workers, Black or African American workers, and workers of two or more races than the New Hampshire workforce averages. This sector was also less unionized than the New Hampshire private sector workforce average. Workers 55 and older were underrepresented in the AT sector compared to the New Hampshire workforce average.

Alternative Transportation Sector – Demographics, Q4 2018

	Alternative Transportation	New Hampshire Workforce Averages	National Workforce Averages
Male	76%	49%	53%
Female	24%	51%	47%
Hispanic or Latino	13%	4%	17%
Not Hispanic or Latino	87%	96%	83%
American Indian or Alaska Native	1%	>1%	1%
Asian	5%	3%	6%
Black or African American	5%	2%	12%
Native Hawaiian or other Pacific Islander	>1%	>1%	>1%
White	85%	90%	78%
Two or more races	4%	1%	2%
Veterans	12%	7%	6%
55 and over	20%	26%	23%
Union (Private Sector)	7%	10%	6%

Source: EMSI and Bureau of Labor Statistics 2018

Methodology

Unless otherwise stated, the data and analyses presented in the New Hampshire Clean Energy and Employment Report (NHCEER) are based on data collected for the 2019 U.S. Energy Employment Report (2019 USEER), produced by the Energy Futures Initiative (EFI) in partnership with the National Association of State Energy Officials (NASEO) and collected and analyzed by BW Research Partnership (BWRP). See methodology at www.usenergyjobs.org.

