

# Program Endorsement Brief:

Butte College: HVAC-R

**North/Far North Center of Excellence, October 2018**

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## INTRODUCTION

Butte College is developing an HVAC-R program in response to an identified need from the state for more trained technicians. This report provides an overview of the labor market demand and supply for related environmental control technology occupations. It provides an overview of the employment opportunities and existing community college programs that prepare students for the profession.

Key findings include:

- Occupational employment fell dramatically during the recession, but has increased to pre-recession levels. Growth projections are strong, between 10 percent and 14 percent, over the next five years. There are 80 annual openings in the 15-county Far North projected over the next five years.
- Wages for environmental control technology jobs are just below the Sacramento living wage rate of \$25.90 for all occupations studied. Median wages are lower in the Far North (\$18.50 per hour) than the Sacramento region (\$21 per hour).
- Annual job postings have hovered at a strong clip, about 250 related postings during the past four years.
- Three schools in the North/Far North region with HVAC-R related programs awarded less than 60 certificates or associate degrees on average over the last three years.

Findings in this report were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi and job posting data from Burning Glass.

The report contains the following sections:

- Occupational demand,
- Wages and job postings,
- Educational attainment and supply, and
- Findings and recommendations.

# OCCUPATIONAL DEMAND

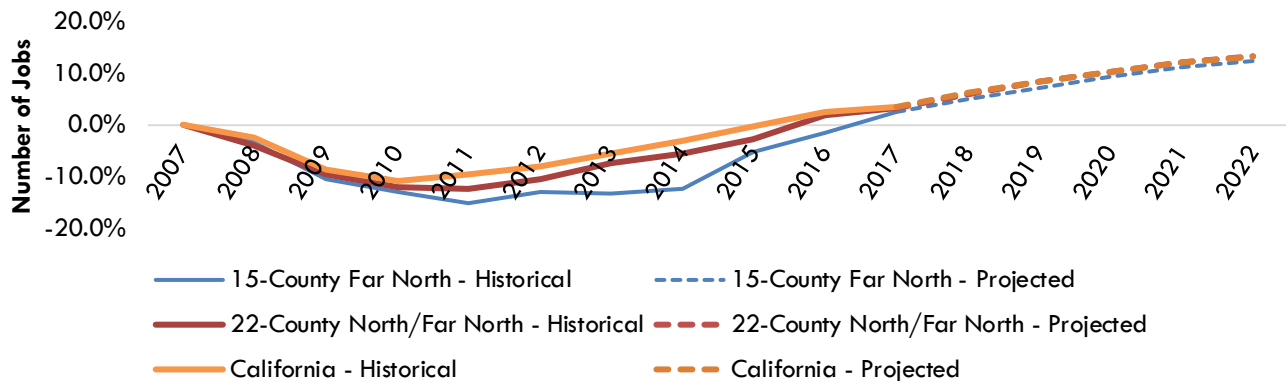
Four Standard Occupational Classification (SOC) codes were analyzed in relation to the proposed program. Exhibit 1 summarizes job trends per the SOC codes in the 15-county Far North region, the 22-county North/Far North region and California.

**Exhibit 1: Employment, projected occupational demand<sup>1</sup>**

Occupation	SOC	2007 Jobs	2017 Jobs	2022 Jobs	2017-22 Jobs % Change	Annual Openings
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	49-9021	674	691	758	9.6%	80
<b>15-County Far North Region</b>	<b>TOTAL</b>	<b>674</b>	<b>691</b>	<b>758</b>	<b>9.6%</b>	<b>80</b>
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	49-9021	2,837	3,121	3,560	14.1%	371
<b>22-County North/Far North Region</b>	<b>TOTAL</b>	<b>2,837</b>	<b>3,121</b>	<b>3,560</b>	<b>14.1%</b>	<b>371</b>
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	49-9021	27,137	31,141	35,793	14.9%	3,719
<b>California</b>	<b>TOTAL</b>	<b>27,137</b>	<b>31,141</b>	<b>35,793</b>	<b>14.9%</b>	<b>3,719</b>

Exhibit 2 shows the percentage change in number of jobs between 2007 through 2017 and occupational projections from 2017 through 2022. The rate of change is indexed to the total number of jobs in 2007 as the base year and compares 15-county Far North region, 22-county North/Far North region and California.

**Exhibit 2: Rate of change for selected occupations<sup>2</sup>**



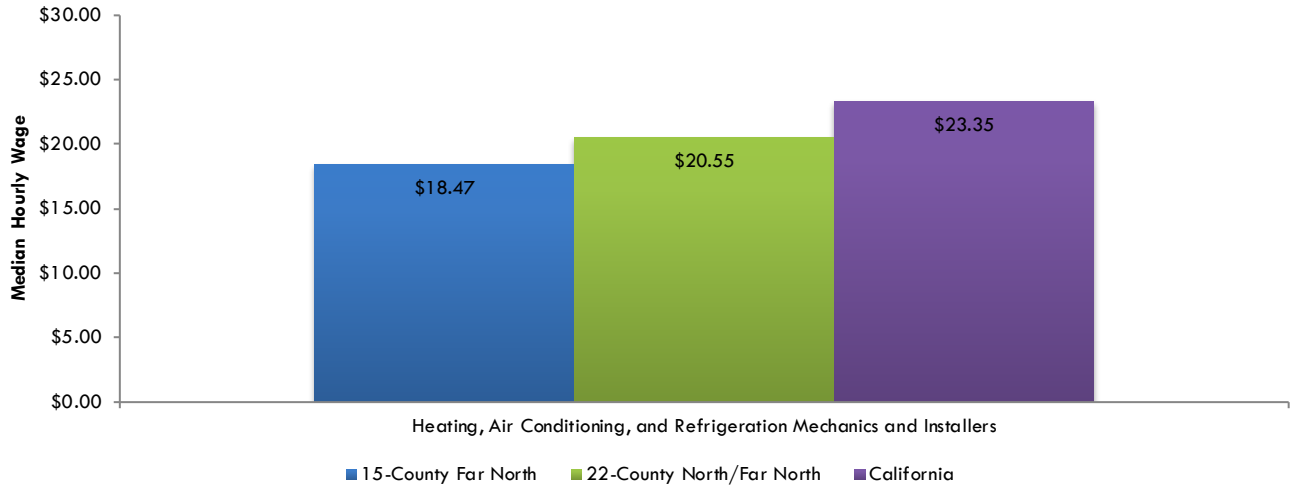
<sup>1</sup> Emsi 2018.2; QCEW Employees, Non-QCEW Employees and Self-Employed. The 15-county Far North region includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama and Trinity. The 22-county North/Far North region includes the aforementioned counties as well as El Dorado, Placer, Nevada, Sacramento, Sutter, Yolo and Yuba.

<sup>2</sup> Ibid.

# WAGES AND JOB POSTINGS

Exhibit 3 displays hourly wages for HVAC-R technicians in the study regions. The chart highlights the median wages.

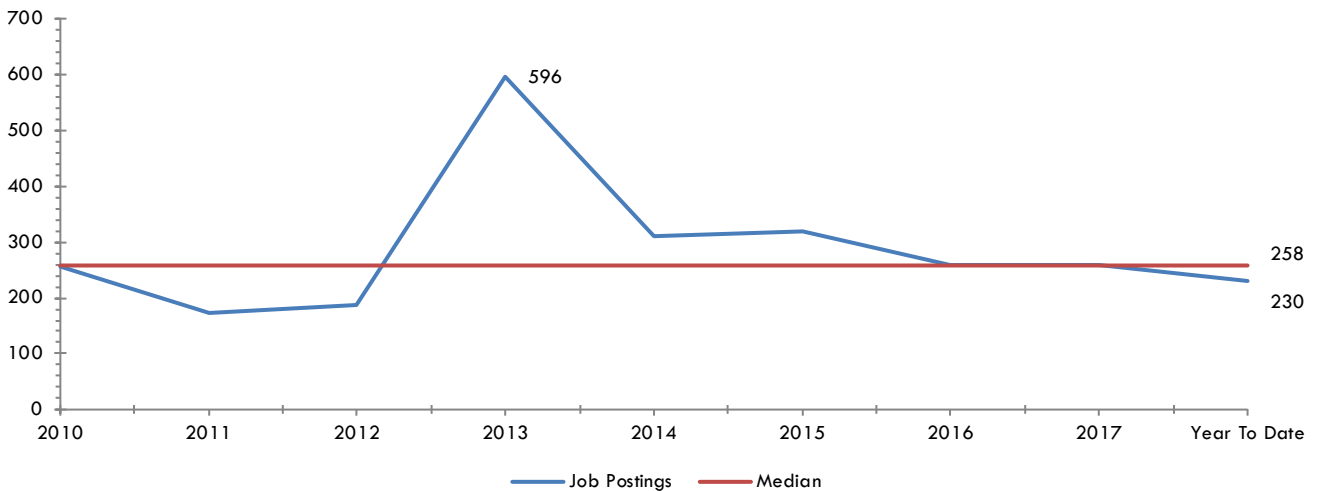
**Exhibit 3: Wages for selected occupations<sup>3</sup>**



Burning Glass data for job postings identified a pool of 292 listings in the North/Far North region on the representative SOC codes. Data was pulled for the last year from September 1, 2017 through August 31, 2018.

Exhibit 4 presents the job postings trend for the SOC codes over the past 10 years compared to the median during the same period for the study regions.

**Exhibit 4: Job posting trend for selected occupations<sup>4</sup>**



<sup>3</sup> Emsi 2018.2; QCEW Employees, Non-QCEW Employees and Self-Employed.  
<sup>4</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool," 2018.

Exhibit 5 shows the top titles for positions within the selected occupations that were present in the job postings.

**Exhibit 5: Top titles for selected occupations<sup>5</sup>**

Top Titles	North/Far North	
	Number	Percent (n=292)
Maintenance Technician	40	13.7%
Service Technician	31	10.6%
Maintenance Worker	25	8.6%
Maintenance Mechanic	15	5.1%
Custodian	13	4.5%
Field Service Technician	12	4.1%
Maintenance Specialist	12	4.1%
Repair Technician	11	3.8%

Exhibit 6 shows the top employers for selected occupation jobs postings in the study regions. There were only 241 postings with employer information, therefore the results below may not be indicative of the entire sample.

**Exhibit 6: Top Employers among selected occupations<sup>6</sup>**

Top Employers	North/Far North	
	Number	Percent (n=241)
Department Army	13	5.4%
Amerigas Propane	7	2.9%
The Home Depot Incorporated	7	2.9%
Department Interior	6	2.5%
Mission Linen Supply Incorporated	6	2.5%
Shasta Union High School District	6	2.5%
US Department of Agriculture	6	2.5%
US Government	6	2.5%

Exhibit 7 shows the top skills desired within selected occupation positions in the study regions. There were only 261 postings with skill information, therefore the results below may not be indicative of the entire sample.

**Exhibit 7: Top skills among selected occupations<sup>7</sup>**

Top Skills	North/Far North	
	Number	Percent (n=261)
Repair	210	80.5%
Plumbing	111	42.5%
HVAC	78	29.9%
Carpentry	68	26.1%
Painting	64	24.5%
Machinery	46	17.6%
Cleaning	40	15.3%
Scheduling	40	15.3%

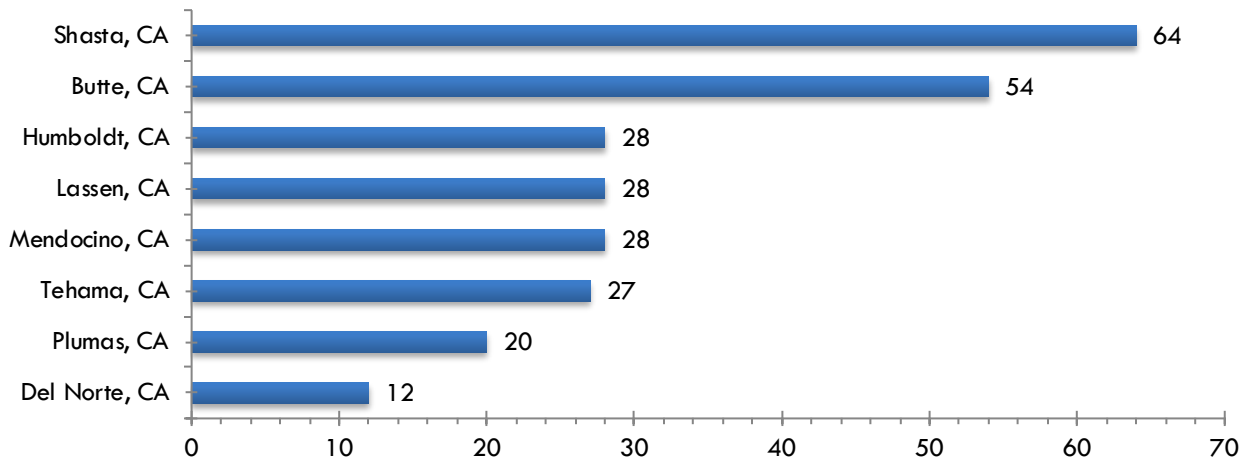
<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

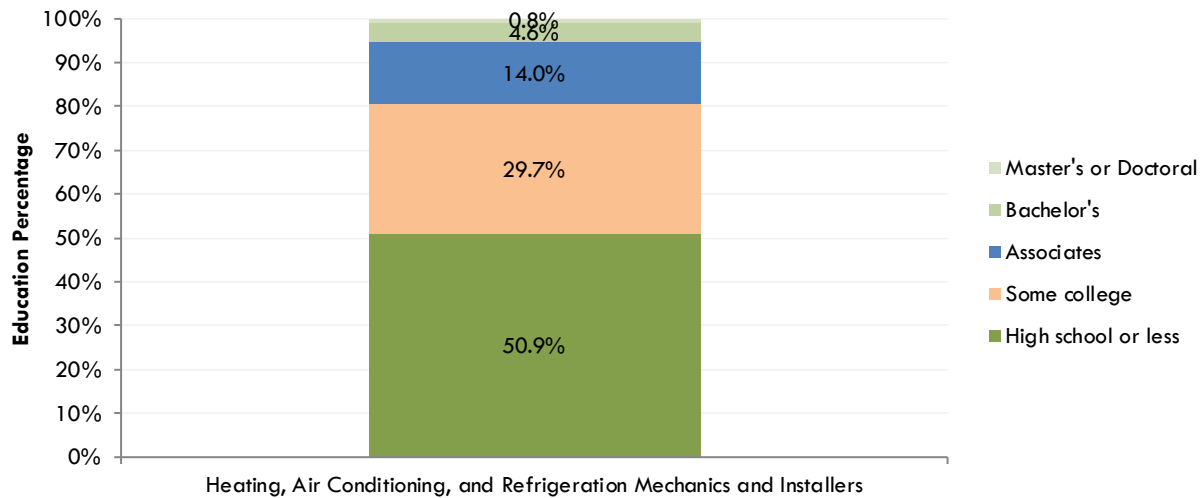
Exhibit 8 shows the counties in the Far North where selected occupations postings were located.

**Exhibit 8: Top locations listed for selected occupations<sup>8</sup>**



## EDUCATIONAL ATTAINMENT AND SUPPLY

At the national level, the typical education required for the selected occupations is a high school diploma or some college. Exhibit 9 breaks down the educational attainment percentages by occupation type. **Exhibit 9: Typical educational attainment for selected occupations nationally<sup>9</sup>**



There was one Taxonomy of Programs (TOP) code identified that relates to the HVAC-R program: Environmental Control Technology (0946.00).

There are three schools in the North/Far North region that currently offer related training, Sacramento City, Mendocino College, and Sierra College. A certificate was the most common award received for the provided training.

<sup>8</sup> Ibid.

<sup>9</sup> Current Population Survey, Educational Attainment for Workers 25 Years and Older by Detailed Occupation, 2014-2015, [https://www.bls.gov/emp/ep\\_table\\_111.htm](https://www.bls.gov/emp/ep_table_111.htm).

Exhibit 10 shows the total number of awards by colleges during the past three academic years.

**Exhibit 10: Total awards conferred by North/Far North community colleges, 2014-2017<sup>10</sup>**

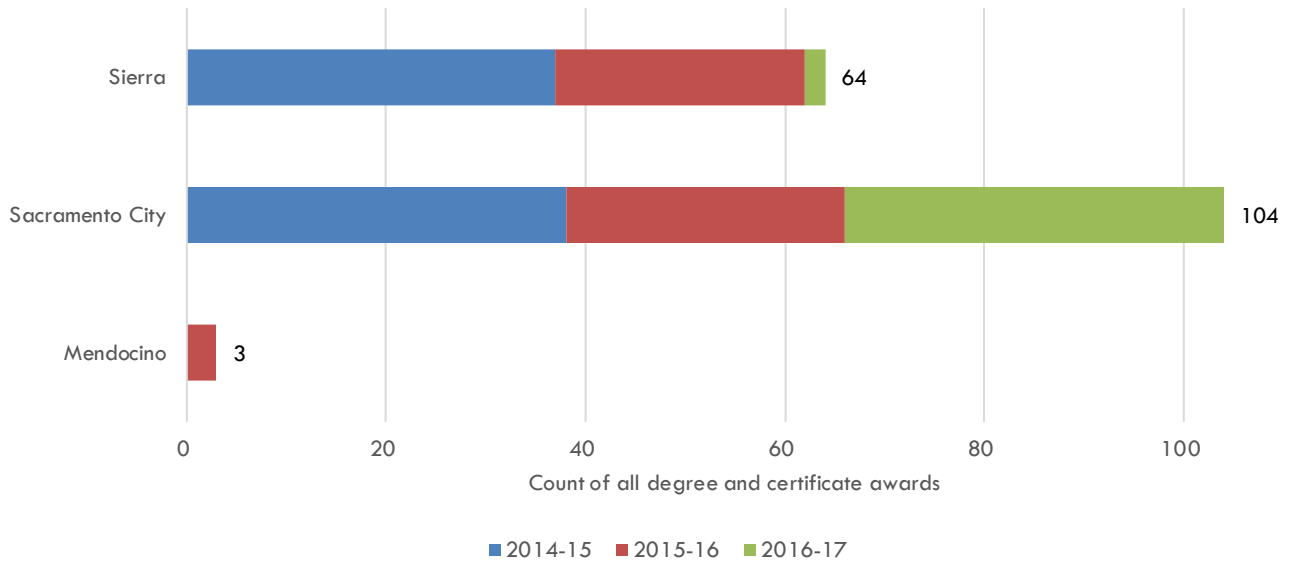


Exhibit 11 shows the break down between certificates and associate degrees.

**Exhibit 11: Certificates and associate degrees conferred by North/Far North community colleges, 2014-2017<sup>11</sup>**

	Certificate				Associate			
	2014-15	2015-16	2016-17	3-Yr Avg	2014-15	2015-16	2016-17	3-Yr Avg
Mendocino	0	3	0	0	0	0	0	0
Sacramento City	28	26	27	28	10	2	11	10
Sierra	36	22	0	36	1	3	2	1
<b>Total</b>	<b>64</b>	<b>61</b>	<b>69</b>	<b>74</b>	<b>16</b>	<b>7</b>	<b>14</b>	<b>12</b>

## FINDINGS

- Occupational employment declined precipitously during the recession, but is projected to have strong growth over the next five years through 2022.
- Wages for environmental control technology jobs are low, just \$18.50 per hour in the Far North.
- Annual job postings have hovered around 250 during the past four years.
- Three schools in the North/Far North region with HVAC-R related programs awarded just under 60 certificates or associates degrees on average over the last three years. This level of graduates is less than a third of the live job postings, suggesting that there is an unfilled employment need for skilled technicians. It is also less than the projected annual openings (80) over the next five years.

<sup>10</sup> COE Supply Tables, California Community Colleges Chancellor's Office DataMart, Integrated Postsecondary Education Data System (IPEDS).

<sup>11</sup> Ibid.

## RECOMMENDATION

- The recession eviscerated the labor market, industry, and training and education pipeline for the construction sector. The COE has reported extensively on the need for the community colleges to invest in the sector, especially the residential industry, to meet workforce demand and to address the housing crisis in California.
- The COE recommends that Butte College move forward with the program.

# APPENDIX A: DATA SOURCES

Sources used for data analysis purposes in this report include:

- U.S. Department of Labor/Employment and Training Administration (DOLETA) O\*NET Online
- Burning Glass, Labor Insight/Jobs
- Economic Modeling Specialists, International (EMSI)
- California Employment Development Department, Labor Market Information Division (EDD, LMID)
- Bureau of Labor Statistics, Occupational Employment Statistics (OES)
- California Community Colleges Chancellor's Office, Cal-PASS Plus LaunchBoard
- Living Insight Center for Community Economic Development, Self-Sufficiency Standard Tool for California
- California Community Colleges Chancellor's Office Management Information Systems (MIS Data Mart)
- U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

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