Executive Summary

The Central Valley/Mother Lode Center of Excellence for Labor Market Research (CVML COE) prepared this report to provide a regional analysis of the five Recovery Economies defined by Burning Glass Technologies in *After the Storm: The Jobs and Skills that will Drive the Post-Pandemic Recovery*.[1] In *After the Storm*, Burning Glass used their database of more than 1 billion job postings "to anticipate what jobs will be most important in the post-pandemic labor market." In this report, the CVML COE applies the same industry, occupation, and skill filters to Burning Glass's online job posting database to measure labor market trends for the five Recovery Economies in the Central Valley/Mother Lode region. The results show the number of job postings for each Recovery Economy, as well as which jobs and skills employers are seeking in the Readiness, Logistics, Green, Remote, and Automated economies as defined by Burning Glass Technologies.

Key Findings

- Following a sharp decline in online job postings in March 2020, online job postings in the Central Valley/Mother Lode region began to recover although with some fluctuation. Since the beginning of 2021, **online job postings have increased and are above pre-pandemic levels.**

- Of the 368,366 online job postings in the Central Valley/Mother Lode region in 2020, **19% (70,706 postings) were within one of the five Recovery Economies.**

  - *Between 2015 and 2021, online job postings for the five Recovery Economies contracted compared to non-Recovery Economy job postings which increased slightly.*

- Of the five Recovery Economies, *the Remote Economy had the highest number of annual job postings* from 2015 through 2020. In 2020, the Remote Economy accounted for 16% of all job postings and 83% of job postings in the five Recovery Economies. The remaining four economies individually accounted for only a small proportion of job postings.

- Of the top 100 occupations identified for the five Recovery Economies, **62% are considered middle skill.** These middle-skill occupations **account for 54% (a total of 38,492 postings) of all Recovery Economy postings.**

  - The middle-skill occupations with the highest number of job postings are Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products; Customer Service Representatives; and Secretaries and Administrative Assistants, Except Legal, Medical, and Executive.

- There were 40,510 Recovery Economy postings that requested a minimum education level. Of those, **45.8% requested a bachelor's, master's, or doctoral degree,** and **47.7% requested a high school diploma or vocational training. Only 6.5% requested an associate degree.**

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[1] https://www.burning-glass.com/research-project/after-storm-recovery-jobs/

- - ***The Remote Economy and the Green Economy have the highest percentage of postings that requested a high school diploma, vocational training, or associate degree (56%),*** followed by the Automated Economy (52%), Readiness Economy (40%), and Logistics Economy (39%).

- Five skills were frequently requested among the five Recovery Economies: ***sales, customer service, scheduling, repair, and budgeting.***

Although online job postings can be used to identify labor market trends, the number of online job postings are not equivalent to labor market demand. However, community colleges in the region can use this report to see how current programs align with the skills that employers request in online job postings and identify employers that can be included in regional employment engagement strategies.

It is also important to consider that the five Recovery Economies accounted for 19% of all postings in 2020. Of those postings, 83% were within the Remote Economy; occupations associated with this economy had a far greater number of job postings overall compared to occupations in the other four economies. Community colleges throughout the region should consider aligning skills and programs with other significant segments of the regional labor market. A comprehensive approach to meeting regional employers' needs will be most effective in meeting workforce demand and helping students obtain employment in stable, in-demand, living wage occupations.

Introduction

The economic shock resulting from the COVID-19 pandemic was unprecedented in its size and scope. Though specific industry sectors such as Accommodation and Food Services, and Arts, Entertainment, and Recreation bore the brunt of job losses, other industry sectors were transformed by relying more heavily on emerging technologies and adapting to a virtual environment through video conferencing and increasing online business. Due to the evolving nature of the pandemic, and because industry and occupational projections are based on historical data that does not yet fully capture the effects of the pandemic, real-time online job postings can be used as a measure of employer activity and current labor market trends.

This report provides an analysis of labor market trends by analyzing job posting data from Burning Glass Technologies. The analysis stems from Burning Glass's report, *After the Storm: The Jobs and Skills that will Drive the Post-Pandemic Recovery,* which used Burning Glass's national database of more than one billion current and historical job postings to identify five "Recovery Economies" that will drive the post-COVID-19 economy. This report applies the same methodology to analyze online job postings in the Central Valley/Mother Lode region and identify the top occupations, education requirements, skills, and employers for each Recovery Economy.

Although online job postings can help identify labor market trends, it is important to note that online job postings do not equal labor market demand. Employers may list jobs that they do not intend to fill to build a pool or pipeline of potential candidates for future openings or they may use a single posting to hire several workers for a specific job. Additionally, some industries such as construction fill openings through other means such as apprenticeship and are typically underrepresented in online job postings.

The Five Recovery Economies

Burning Glass Technologies identified the following five Recovery Economies that will drive the post-COVID-19 economy in "interrelated and transformative directions": The Readiness Economy, Logistics Economy, Green Economy, Remote Economy, and Automated Economy. A description of each economy is included below.

The Readiness Economy

The Readiness Economy, which is comprised of subsectors involved in biotech, public health, infrastructure and cybersecurity, relates to our level of preparedness for crises such as cybersecurity breaches, power grid failure, environmental disasters, or health pandemics like COVID-19 that have the power to disrupt economies on an international scale. Being able to respond to these catastrophes requires roles such as cybersecurity experts, software engineers, as well as project managers and other organizational talent.

The Logistics Economy

The Logistics Economy is comprised of business establishments that focus on manufacturing of PPE, medical equipment, and pharmaceuticals; logistics and supply chain management; internet of things (IoT) specific to the supply chain; and industrial big data analytics. This recovery economy is critical to keeping the supply chain moving to prevent a shortage of items that households had previously taken for granted and that suddenly disappeared during the pandemic—toilet paper, hand sanitizer, and other necessities. The Logistics Economy is a highly complex system that shares an overlap of jobs and skills with the Automated Economy.

The Green Economy

The Green Economy is focused on renewable energy and is responsive to an increasing emphasis on goals aimed at reducing the rate of climate change. This economy is comprised of subsectors encompassing environmental science and engineering, fuel cell and nuclear power, natural resource conservation, pollution removal, waste management and recycling, as well as renewable energy.

The Remote Economy

The Remote Economy is comprised of subsectors such as computer network engineering, architecture, and support; AR/VR; cloud-related jobs; e-commerce; and educational technology. These roles have already become increasingly important as more and more workers and students perform their duties remotely. While this economy largely consists of workers who are college-educated, opportunities may arise in remote sales or marketing positions that do not require a bachelor's degree.

### The Automated Economy

The Automated Economy is comprised of subsectors involved in robotics and process automation, artificial intelligence, natural language processing, machine learning, computer vision and autonomous driving, AI (diagnosis) and robotics in health care, and AI in finance and investments. This economy was already on the rise before the pandemic began and has only accelerated since.

Overall Trends in Job Postings in the Central Valley/Mother Lode Region

Employers generally posted fewer job advertisements in 2020 compared to 2019 in the Central Valley/Mother Lode region. The most notable difference came in May of 2020, where job postings were about 60% below the same period in 2019. Following the dramatic decline in job postings during the first six months of 2020, job posting numbers rose considerably, although with the return of shutdowns in California around November and December of 2020 due to rising COVID cases, job postings in the region ended the year at a level far below 2019. In 2021, the number of weekly job postings rose higher than in previous years, trending well above pre-pandemic levels in 2019. Exhibit 1 displays the weekly trend in online job postings for the full years of 2019 and 2020, as well as the first six months of 2021.

Exhibit 1: Weekly Online Job Postings Index, 2019 – June 2021[2]
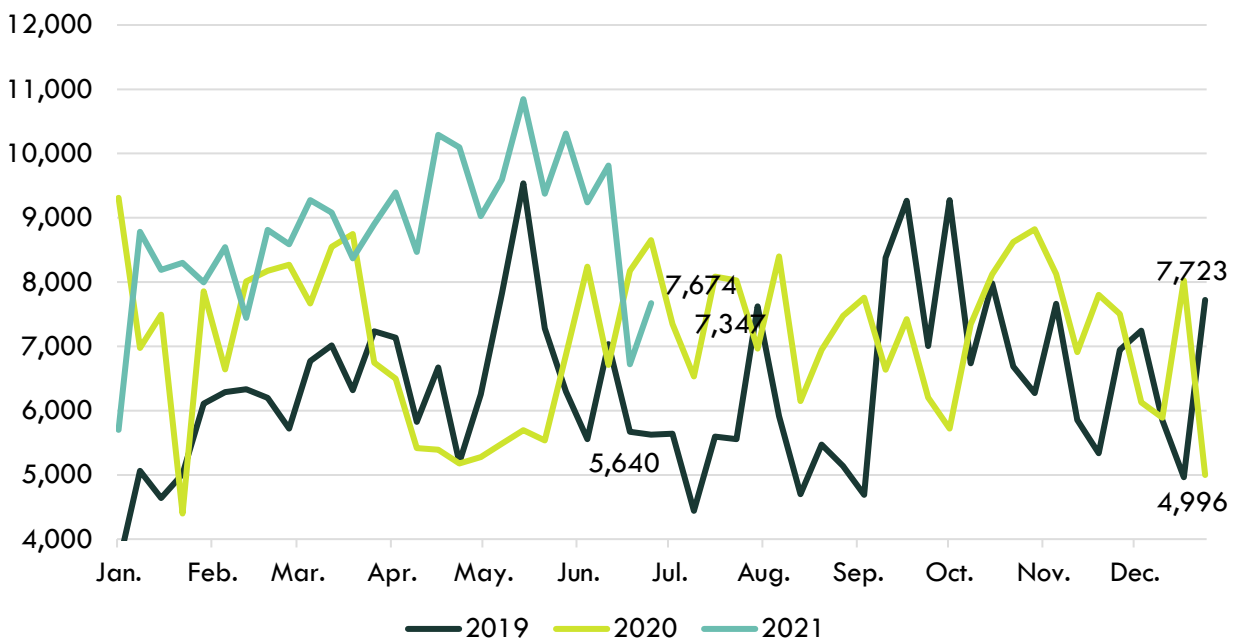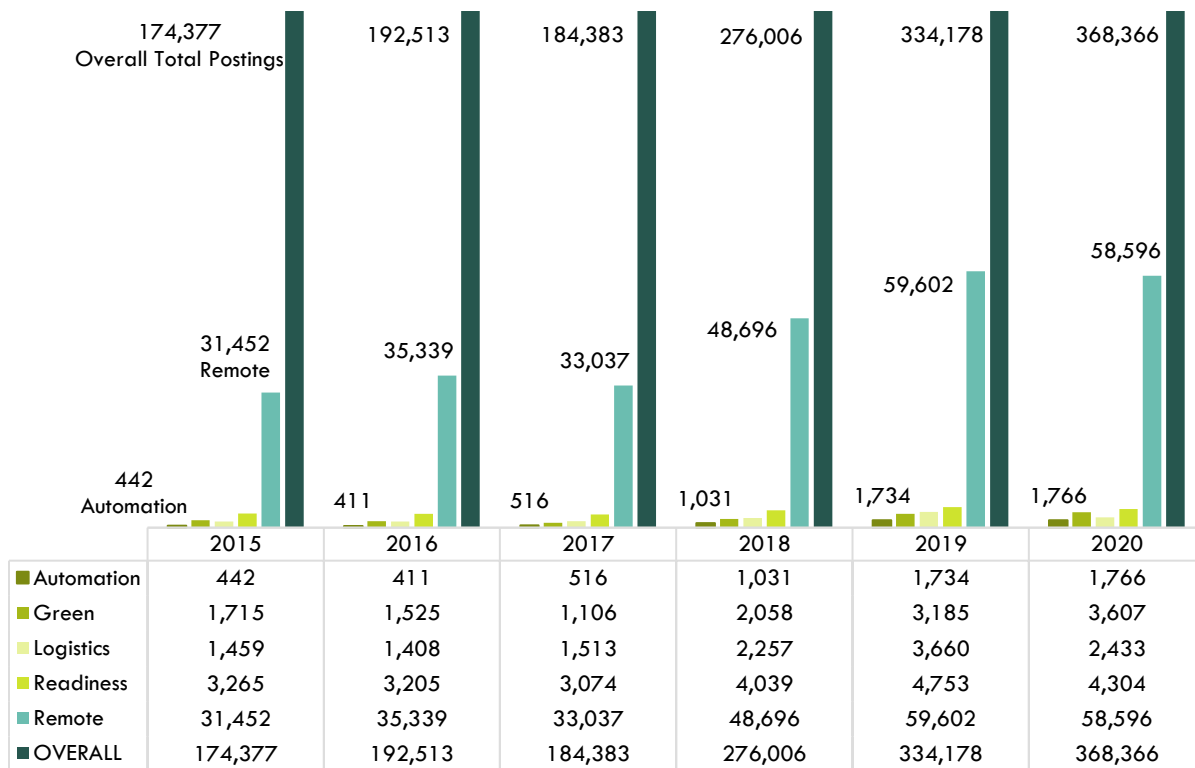

Scale and Size of The Five Recovery Economies

Exhibit 2 shows the total number of job postings for each Recovery Economy, as well total job postings, from 2015 to 2020. Of the five Recovery Economies, the Remote Economy had the highest number of annual job postings from 2015 through 2020. In 2020, the Remote Economy accounted for 16% of total job postings and 83% of all job postings in the five Recovery Economies. By comparison, the four other Recovery Economies combined accounted for 3% of total postings in the same year.

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[2] The data presented in Exhibit 1 represents an index of weekly online job postings. Values are indexed to the first week of January in each year to better understand the seasonal trend in online postings. The first week of January of each year is considered the benchmark week to which all other weeks are compared. Values above 100 indicate that online job postings were higher than the benchmark week, while values below 100 indicate the postings were lower than the benchmark week.

Exhibit 2: Online Job Postings by Recovery Economy, 2015-2020

	2015	2016	2017	2018	2019	2020
■ Automation	442	411	516	1,031	1,734	1,766
■ Green	1,715	1,525	1,106	2,058	3,185	3,607
■ Logistics	1,459	1,408	1,513	2,257	3,660	2,433
■ Readiness	3,265	3,205	3,074	4,039	4,753	4,304
■ Remote	31,452	35,339	33,037	48,696	59,602	58,596
■ OVERALL	174,377	192,513	184,383	276,006	334,178	368,366

Between 2015 and 2019, these five Recovery Economies accounted for 22% of annual online job postings in Central Valley/Mother Lode. In 2020, as well as from January to June 2021, the Recovery Economies accounted for 19% of all online job postings. Between 2015 and 2020, the number of online job postings in the Recovery Economies contracted slightly while non-Recovery Economy job postings increased by three percentage points. Exhibit 3 shows the annual average of online job postings for each Recovery Economy during the pre-pandemic period (2015-2019), as well as for 2020 and the first six months of 2021.

Exhibit 3: Online Job Postings by Recovery Economy, 2015-2019, 2020, and 2021

Recovery Economy	Average Annual Postings (2015 - 2019)		2020 Postings		Early 2021 Postings (Jan. – Jun. 2021)	
Automated	827	0%	1,766	0%	1,309	1%
Green	1,918	1%	3,607	1%	2,391	1%
Logistics	2,059	1%	2,433	1%	1,086	0%
Readiness	3,667	2%	4,304	1%	2,618	1%
Remote	41,625	18%	58,596	16%	37,307	16%
All Other Postings	182,195	78%	297,660	81%	184,963	81%
Total Postings	**232,291**	**100%**	**368,366**	**100%**	**229,674**	**100%**

Job Posting Analysis by Recovery Economy

The following sections include an analysis of online job postings, including the top occupations, skills, and employers, for each of the five Recovery Economies in the Central Valley/Mother Lode region in 2020.

The Readiness Economy

The Readiness Economy, which includes subsectors involved in biotech, public health, infrastructure, and cybersecurity, relates to our level of preparedness for crises such as cybersecurity breaches, power grid failure, environmental disasters, or health pandemics like COVID-19 that have the power to disrupt economies on an international scale.

Top Occupations

Job postings in the Readiness Economy in the Central Valley/Mother Lode region in 2020 were heavily concentrated in positions related to information technology, cybersecurity, and other computer occupations. Exhibit 4 displays the top 20 occupations from this economy. The occupation that was posted most frequently was Information Security Analysts (378 postings).

Of the top 20 occupations, 12 (60%) are considered middle-skill occupations. The middle-skill occupations with the highest number of job postings in the Readiness Economy in 2020 were Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other (193 postings), Computer Occupations, All Other (178 postings), and Network and Computer Systems Administrators (168 postings).

**Exhibit 4: Top Occupations for the Readiness Economy in the
Central Valley/Mother Lode Region, 2020 (n= 4,086)**

SOC Code	Occupation	Job Postings
15-1212	Information Security Analysts	378
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other*	193
15-1299	Computer Occupations, All Other*	178
15-1244	Network and Computer Systems Administrators*	168
15-1232	Computer User Support Specialists*	145
17-2051	Civil Engineers	144
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	133
15-1241	Computer Network Architects*	95
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products*	82
17-2071	Electrical Engineers	82
11-1021	General and Operations Managers*	62
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products*	57
11-9021	Construction Managers*	55
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive*	51
11-9111	Medical and Health Services Managers	48
47-2111	Electricians*	47
43-4051	Customer Service Representatives*	45

SOC Code	Occupation	Job Postings
13-1198	Project Management Specialists and Business Operations Specialists, All Other	44
17-1022	Surveyors	43
17-2141	Mechanical Engineers	43

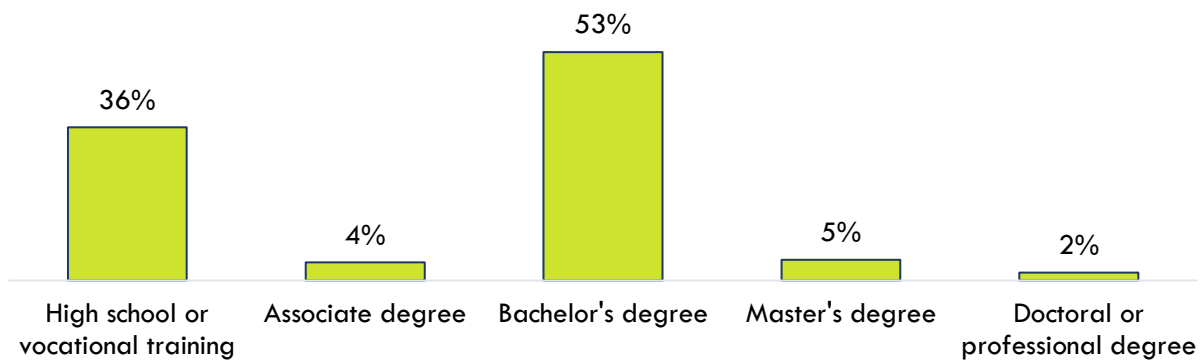*Middle-Skill Job*   *Source: Burning Glass*

Education Requirements

Employers advertising for candidates in this economy were predominately seeking workers with a bachelor's degree. Of the 2,930 postings that included a minimum education requirement, 53% (1,564) required a bachelor's degree or higher. Although 36% (1,048) of postings required a high school diploma or vocational training, only 4% (124) required an associate degree. Exhibit 5 displays the minimum advertised education requirement from job postings.

Exhibit 5: Minimum Educational Requirements for the Readiness Economy in the Central Valley/Mother Lode Region, 2020 (n=2,930)
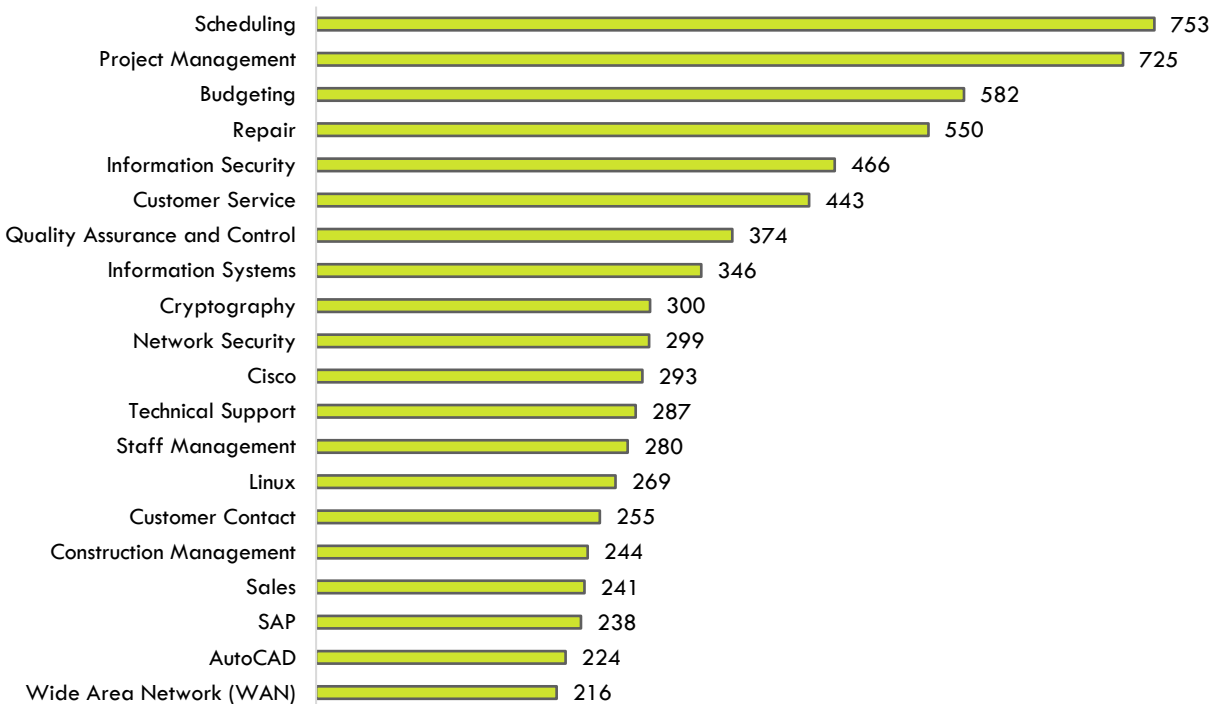

Source: Burning Glass

Skills

Exhibit 6 shows the top 20 skills requested by employers in online job postings in the Readiness Economy in 2020. The top five skills were scheduling, project management, budgeting, repair, and information security.

Exhibit 6: Top Skills for the Readiness Economy in the Central Valley/Mother Lode Region, 2020 (n= 4,091)

Skill	Value
Scheduling	753
Project Management	725
Budgeting	582
Repair	550
Information Security	466
Customer Service	443
Quality Assurance and Control	374
Information Systems	346
Cryptography	300
Network Security	299
Cisco	293
Technical Support	287
Staff Management	280
Linux	269
Customer Contact	255
Construction Management	244
Sales	241
SAP	238
AutoCAD	224
Wide Area Network (WAN)	216

Source: Burning Glass

Employers

Exhibit 7 shows the top 10 employers for job postings in the Readiness Economy in 2020. The top employers in the Central Valley/Mother Lode region were Pacific Gas and Electric Company, the Forest Service, and the engineering and design firm Parsons Brinckerhoff.

Exhibit 7: Top Employers for the Readiness Economy in the Central Valley/Mother Lode Region, 2020 (n= 3,790)

Employer	Job Postings
Pacific Gas and Electric Company	466
Forest Service	111
Parsons Brinckerhoff	89
Edison International	75
Jacobs Engineering Group Incorporated	74
Lockheed Martin Corporation	68
Crowdstrike	63
Genentech	61
AECOM Technology Corporation	57
Stantec, Inc.	56

Source: Burning Glass

The Logistics Economy

The Logistics Economy is comprised of business establishments that focus on manufacturing of PPE, medical equipment, and pharmaceuticals; logistics and supply chain management; internet of things (IoT) specific to the supply chain; and industrial big data analytics. This recovery economy is critical to keeping the supply chain moving to prevent a shortage of items households previously had taken for granted that suddenly disappeared during the pandemic—toilet paper, hand sanitizer, and other necessities. The Logistics Economy is a highly complex system that shares an overlap of jobs and skills with the Automated Economy.

Top Occupations

Job postings in the Logistics Economy in the Central Valley/Mother Lode region in 2020 were related to a wide variety of fields including computer occupations, marketing and sales, health, and manufacturing and engineering. Exhibit 8 displays the top 20 occupations from this economy. The occupation that was posted most frequently was Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (206 postings).

Of the top 20 occupations, 13 (65%) are considered middle-skill occupations. Other middle-skill occupations with a high number of job postings in the Logistics Economy in 2020 were Computer Occupations, All Other (102 postings), Heavy and Tractor-Trailer Truck Drivers (89 postings), and Customer Service Representatives (58 postings).

Exhibit 8: Top Occupations for the Logistics Economy in the Central Valley/Mother Lode Region, 2020 (n=2,344)

SOC Code	Occupation	Job Postings
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products*	206
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	189
11-2022	Sales Managers	120
15-1299	Computer Occupations, All Other*	102
53-3032	Heavy and Tractor-Trailer Truck Drivers*	89
53-7065	Stockers and Order Fillers	71
43-4051	Customer Service Representatives*	58
11-9111	Medical and Health Services Managers	54
19-1042	Medical Scientists, Except Epidemiologists	53
11-1021	General and Operations Managers*	51
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	50
53-7051	Industrial Truck and Tractor Operators*	50
29-2052	Pharmacy Technicians*	47
11-9121	Natural Sciences Managers	47
11-3071	Transportation, Storage, and Distribution Managers*	43
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products*	43
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other*	43
15-1244	Network and Computer Systems Administrators*	37
49-3011	Aircraft Mechanics and Service Technicians*	32

SOC Code	Occupation	Job Postings
49-9071	Maintenance and Repair Workers, General*	29

Middle-Skill Job   *Source: Burning Glass*

Education Requirements

Employers advertising for candidates in this economy were predominately seeking workers with a bachelor's degree. Of the 1,726 postings that included a minimum education requirement, 55% (946) required a bachelor's degree as the minimum education. Only 5% (93) required an associate degree. Exhibit 9 displays the minimum advertised education requirement from job postings.

Exhibit 9: Minimum Educational Requirements for the Logistics Economy in the Central Valley/Mother Lode Region, 2020 (n=1,726)
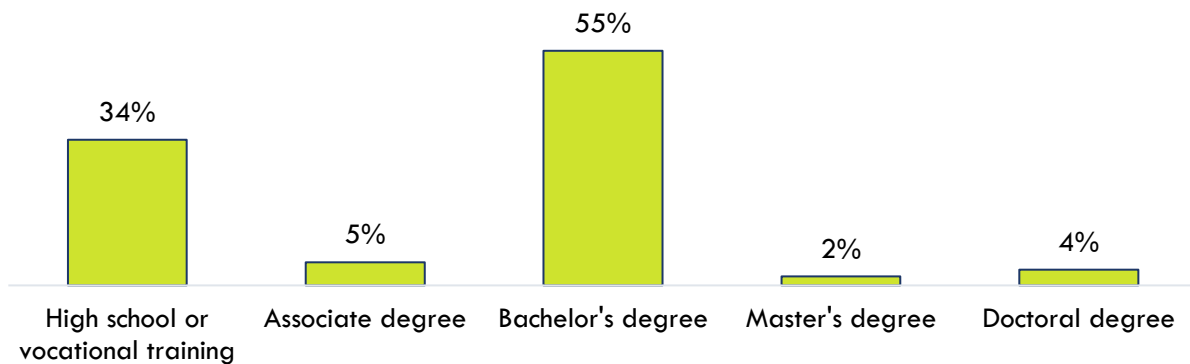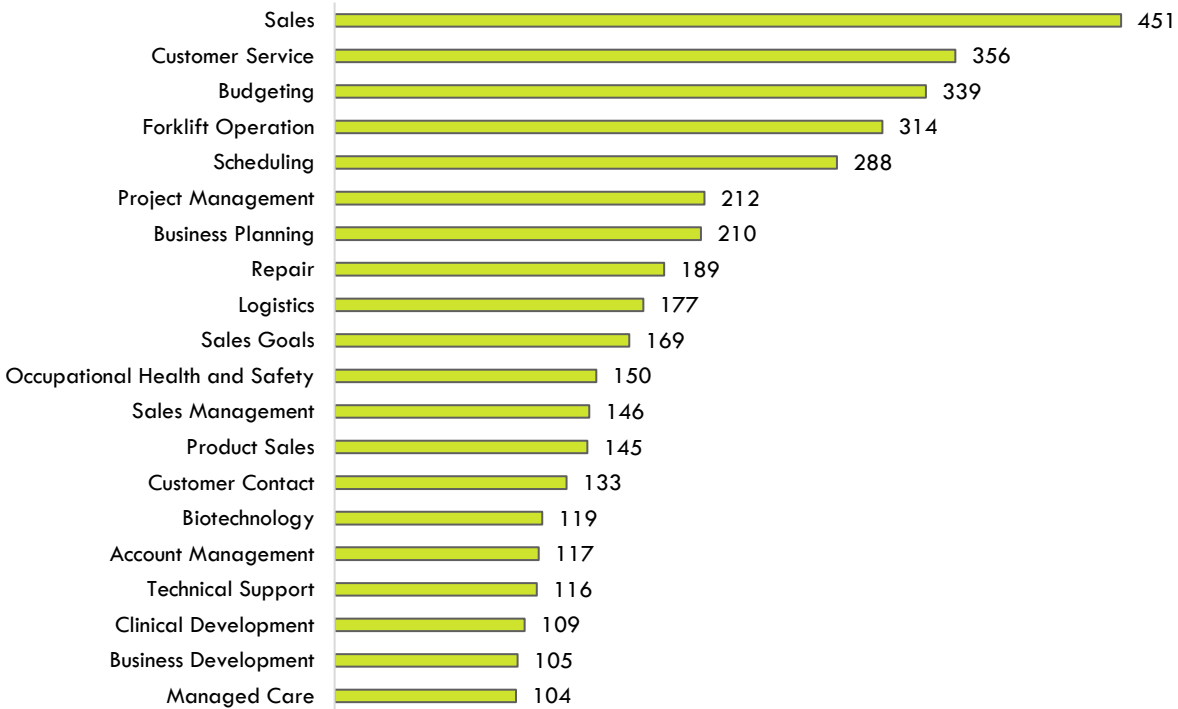

Source: Burning Glass

Skills

Exhibit 10 shows the top 20 skills requested by employers in online job postings in the Logistics Economy in 2020. The top five skills were sales, customer service, budgeting, forklift operation, and scheduling.

Exhibit 10: Top Skills for the Logistics Economy in the Central Valley/Mother Lode Region, 2020 (n= 2,187)

Skill	Count
Sales	451
Customer Service	356
Budgeting	339
Forklift Operation	314
Scheduling	288
Project Management	212
Business Planning	210
Repair	189
Logistics	177
Sales Goals	169
Occupational Health and Safety	150
Sales Management	146
Product Sales	145
Customer Contact	133
Biotechnology	119
Account Management	117
Technical Support	116
Clinical Development	109
Business Development	105
Managed Care	104

Source: Burning Glass

Employers

Exhibit 11 shows the top 10 employers for job postings in the Logistics Economy in 2020. The top employers in the Logistics Economy are concentrated in the pharmaceuticals and health industries, and logistics industries. The top employers in the Central Valley/Mother Lode region were Bayer Corporation, Medline Industries, and Capstone Logistics Group.

Exhibit 11: Top Employers for the Logistics Economy in the Central Valley/Mother Lode Region, 2020 (n=2,303)

Employer	Job Postings
Bayer Corporation	362
Medline Industries	199
Capstone Logistics Group	170
XPO Logistics	138
DCS Corporation	117
Amgen	72
Cardinal Health, Inc.	69
Grifols	53
Thermo Fisher Scientific Inc	52
Johnson & Johnson	49

Source: Burning Glass

The Green Economy

The Green Economy is focused on renewable energy and is responsive to an increasing emphasis on goals aimed at reducing the rate of climate change. This economy is comprised of subsectors encompassing environmental science and engineering, fuel cell and nuclear power, natural resource conservation, pollution removal, waste management and recycling, as well as renewable energy.

Top Occupations

Job postings in the Green Economy in the Central Valley/Mother Lode region in 2020 were primarily related to renewable energy, environmental science, and natural resources occupations, and also included a handful of business occupations. Exhibit 12 displays the top 20 occupations from this economy. The occupation that was posted most frequently was Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products (441 postings).

Of the top 20 occupations, 12 (60%) are considered middle-skill occupations. In addition to sales representatives, the middle-skill occupations with the highest number of job postings in the Green Economy in 2020 were Solar Photovoltaic Installers (346 postings), followed by Foresters (213 postings), and Forest and Conservation Technicians (173 postings).

Exhibit 12: Top Occupations for the Green Economy in the Central Valley/Mother Lode Region, 2020 (n=3,587)

SOC Code	Occupation	Job Postings
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products*	441
47-2231	Solar Photovoltaic Installers*	346
11-9121	Natural Sciences Managers	257
19-1032	Foresters*	213
19-4071	Forest and Conservation Technicians*	173
53-7081	Refuse and Recyclable Material Collectors	160
19-2041	Environmental Scientists and Specialists, Including Health	146
51-8031	Water and Wastewater Treatment Plant and System Operators*	138
19-4042	Environmental Science and Protection Technicians, Including Health*	133
17-2081	Environmental Engineers	121
47-2111	Electricians*	87
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers*	76
19-1031	Conservation Scientists	76
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products*	73
49-9071	Maintenance and Repair Workers, General*	68
13-1198	Project Management Specialists and Business Operations Specialists, All Other	62
49-9081	Wind Turbine Service Technicians*	60
13-1041	Compliance Officers*	60
19-1013	Soil and Plant Scientists	58
19-2042	Geoscientists, Except Hydrologists and Geographers	52

*Middle-Skill Job   Source: Burning Glass

Education Requirements

Employers advertising for candidates in this economy were predominately seeking workers with a high school diploma or vocational training. Of the 1,684 postings that included a minimum education requirement, 52% (895) required a high school diploma or vocational training as the minimum education level. Only 4% (62) required an associate degree. Exhibit 13 displays the minimum advertised education requirement from job postings.

Exhibit 13: Minimum Educational Requirements for the Green Economy in the Central Valley/Mother Lode Region, 2020 (n=1,717)

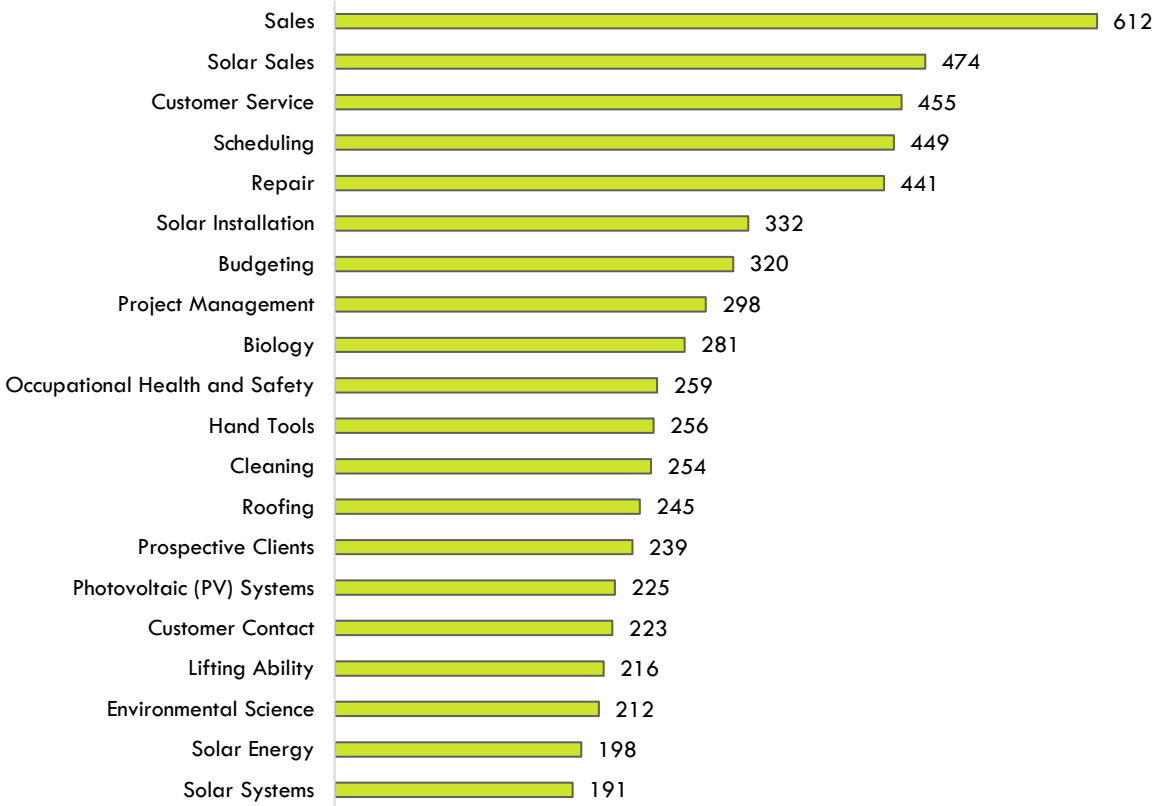|				
52%	4%	37%	5%	2%
High school or vocational training	Associate degree	Bachelor's degree	Master's degree	Doctoral degree
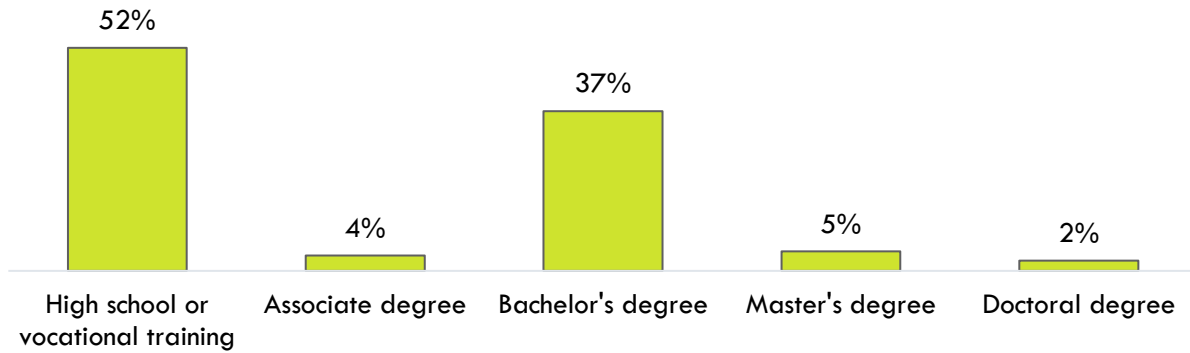
Source: Burning Glass

Skills

Exhibit 14 shows the top 20 skills requested by employers in online job postings in the Green Economy in 2020. The top five specialized skills were sales, solar sales, customer service, scheduling, and repair.

Exhibit 14: Top Skills for the Green Economy in the Central Valley/Mother Lode Region, 2020 (n=3,189)

Skill	Count
Sales	612
Solar Sales	474
Customer Service	455
Scheduling	449
Repair	441
Solar Installation	332
Budgeting	320
Project Management	298
Biology	281
Occupational Health and Safety	259
Hand Tools	256
Cleaning	254
Roofing	245
Prospective Clients	239
Photovoltaic (PV) Systems	225
Customer Contact	223
Lifting Ability	216
Environmental Science	212
Solar Energy	198
Solar Systems	191

Source: Burning Glass

Employers

Exhibit 15 shows the top 10 employers for job postings in the Green Economy in 2020. The top employers in the Green Economy are concentrated in natural resources, renewable energy, and solar fields. The top employers in the Central Valley/Mother Lode region were the Forest Service, Sunrun, and Semper Solaris.

Exhibit 15: Top Employers for the Green Economy in the Central Valley/Mother Lode Region, 2020 (n=3,008)

Employer	Job Postings
Forest Service	125
Sunrun	123
Semper Solaris	94
Vivint Solar	61
ACRT Incorporated	49
Golden Valley Energy	47
ACRT Pacific, LLC	45
Solar Energy Partners	43
State of California	41
National Park Service	33

The Remote Economy

The Remote Economy is comprised of subsectors such as computer network engineering, architecture, and support; AR/VR; cloud-related jobs; e-commerce; and educational technology. These roles have already become increasingly important as more and more workers and students perform their duties remotely. While this economy is largely comprised of workers who are college-educated, opportunities may arise in remote sales or marketing positions that do not require a bachelor's degree.

Top Occupations

Job postings in the Remote Economy in the Central Valley/Mother Lode region in 2020 were primarily related to business, office, clerical, and administrative occupations. Exhibit 16 displays the top 20 occupations from this economy. The occupation that was posted most frequently was Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (8,281 postings).

Of the top 20 occupations, 13 (65%) are considered middle-skill occupations. The top two occupations in this Recovery Economy are considered middle skill. In addition to Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products, the middle-skill occupation with the second highest number of job postings in the Remote Economy in 2020 was Customer Service Representatives (7,480 postings), followed by Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (3,788 postings).

**Exhibit 16: Top Occupations for the Remote Economy in the
Central Valley/Mother Lode Region, 2020 (n=58,596)**

SOC Code	Occupation	Job Postings
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products*	8,281
43-4051	Customer Service Representatives*	7,480
11-9111	Medical and Health Services Managers	5,161
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive*	3,788
11-1021	General and Operations Managers*	2,958
27-1026	Merchandise Displayers and Window Trimmers	2,858
43-9061	Office Clerks, General*	2,256
11-2022	Sales Managers	2,202
43-6013	Medical Secretaries and Administrative Assistants*	1,756
41-9022	Real Estate Sales Agents*	1,357
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	1,348
43-1011	First-Line Supervisors of Office and Administrative Support Workers*	1,332
43-4171	Receptionists and Information Clerks*	1,331
11-3071	Transportation, Storage, and Distribution Managers*	932
17-2051	Civil Engineers	903
41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel*	835
11-3051	Industrial Production Managers*	831

SOC Code	Occupation	Job Postings
25-2011	Preschool Teachers, Except Special Education*	786
21-1022	Healthcare Social Workers	762
21-1029	Social Workers, All Other	750

*Middle-Skill Job*   *Source: Burning Glass*

Education Requirements

Although employers advertising for candidates in this economy were predominately seeking workers with a high school diploma or vocational training, 49% (a total of 16,239 job postings), this economy also has a high percentage of postings requesting a bachelor's degree, 40% (12,219). Of the 32,891 postings that included a minimum education requirement, 7% (22,240) required an associate degree. Exhibit 17 displays the minimum advertised education requirement from job postings.

Exhibit 17: Minimum Educational Requirements for the Remote Economy in the Central Valley/Mother Lode Region, 2020 (n=32,891)
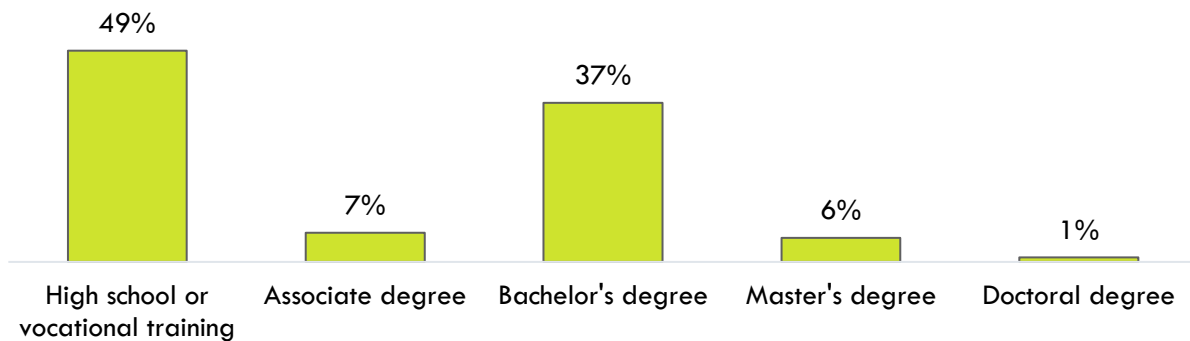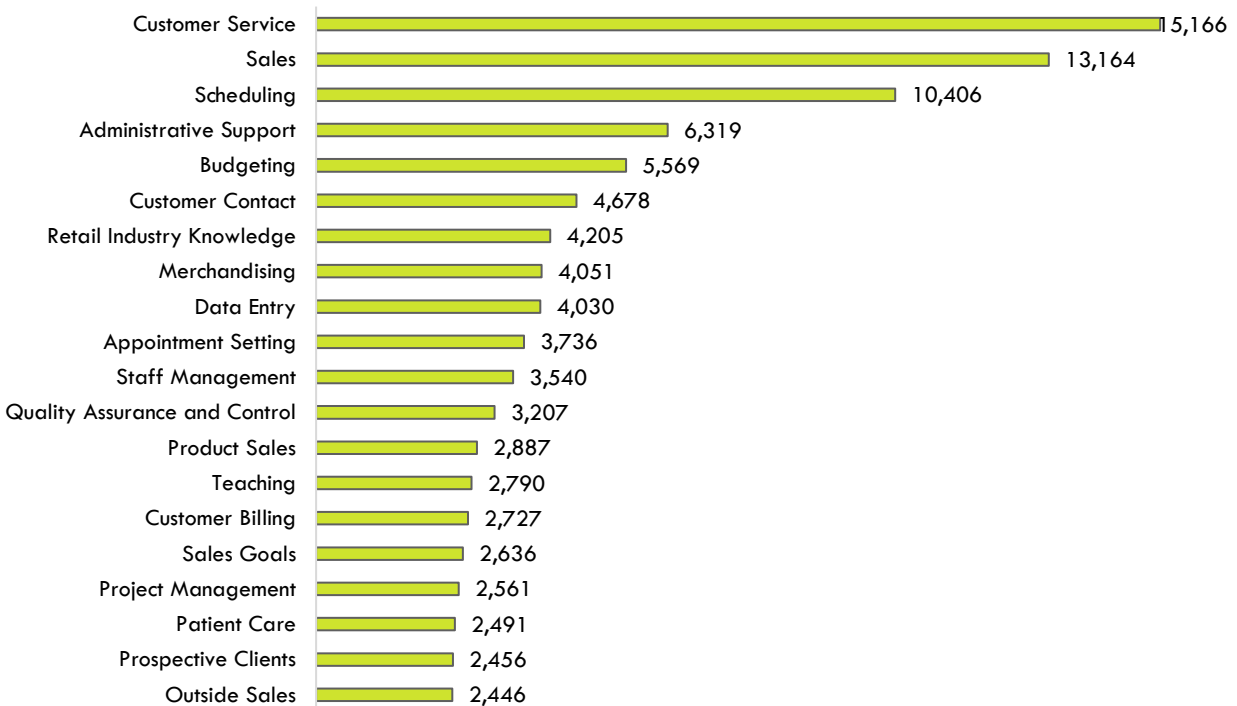

Source: Burning Glass

Skills

Exhibit 18 shows the top 20 specialized skills requested by employers in online job postings in the Remote Economy in 2020. The top five specialized skills were customer service, sales, scheduling, administrative support, and budgeting.

Exhibit 18: Top Skills for the Remote Economy in the Central Valley/Mother Lode Region, 2020 (n=52,133)

Skill	Value
Customer Service	15,166
Sales	13,164
Scheduling	10,406
Administrative Support	6,319
Budgeting	5,569
Customer Contact	4,678
Retail Industry Knowledge	4,205
Merchandising	4,051
Data Entry	4,030
Appointment Setting	3,736
Staff Management	3,540
Quality Assurance and Control	3,207
Product Sales	2,887
Teaching	2,790
Customer Billing	2,727
Sales Goals	2,636
Project Management	2,561
Patient Care	2,491
Prospective Clients	2,456
Outside Sales	2,446

Source: Burning Glass

Employers

Exhibit 19 shows the top 10 employers for job postings in the Remote Economy in 2020. The top employers in the Remote Economy cut across a variety of fields including health, insurance, real estate, and retail sales. The top employers in the Central Valley/Mother Lode region were Anthem Blue Cross, Dignity Health, and Adventist Health.

Exhibit 19: Top Employers for the Remote Economy in the Central Valley/Mother Lode Region, 2020 (n= 47,728)

Employer	Job Postings
Anthem Blue Cross	1,081
Dignity Health	458
Adventist Health	356
PMZ Real Estate	311
Guarantee Real Estate	278
Crossmark	248
Amazon	239
Dollar Tree	224
Family Dollar Stores Incorporated	222
Bayer Corporation	199

Source: Burning Glass

The Automated Economy

The Automated Economy is comprised of subsectors involved in robotics and process automation, artificial intelligence, natural language processing, machine learning, computer vision and autonomous driving, AI (diagnosis) and robotics in health care, and AI in finance and investments. This economy was already on the rise before the pandemic began and has only accelerated since.

Top Occupations

Job postings in the Automated Economy in the Central Valley/Mother Lode region in 2020 were primarily related to computer, engineering, and health care occupations. Exhibit 20 displays the top 20 occupations from this economy. The occupation that was posted most frequently was Computer Occupations, All Other (133 postings). This is a middle-skill occupation

Of the top 20 occupations, 11 (60%) are considered middle-skill occupations. Other middle-skill occupations with a high number of job postings in the Automated Economy in 2020 were Maintenance and Repair Workers, General (126 postings), Industrial Engineering Technologists and Technicians (114 postings), and Registered Nurses (65 postings).

Exhibit 20: Top Occupations for the Automated Economy in the Central Valley/Mother Lode Region, 2020 (n=1,692)

SOC Code	Occupation	Job Postings
15-1299	Computer Occupations, All Other*	133
49-9071	Maintenance and Repair Workers, General*	126
17-3026	Industrial Engineering Technologists and Technicians*	114
17-1022	Surveyors	92
29-1228	Physicians, All Other; and Ophthalmologists, Except Pediatric	79
17-2071	Electrical Engineers	73
29-1141	Registered Nurses*	65
17-3023	Electrical and Electronic Engineering Technologists and Technicians*	54
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	43
49-9041	Industrial Machinery Mechanics*	39
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other*	37
15-1221	Computer and Information Research Scientists	37
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians*	30
51-9199	Production Workers, All Other	26
17-3031	Surveying and Mapping Technicians*	25
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers*	25
29-2055	Surgical Technologists*	24
11-9041	Architectural and Engineering Managers	24
17-2199	Engineers, All Other	22
15-1241	Computer Network Architects*	21

*Middle-Skill Job   Source: Burning Glass

Education Requirements

Employers advertising for candidates in this economy were predominately seeking workers with a high school diploma or vocational training. Of the 1,246 postings that included a minimum education requirement, 43% (542) required a high school diploma or vocational training as the minimum education level. Only 9% (116) required an associate degree; however, this represents the highest demand by employers for an associate degree of all five economies. Exhibit 21 displays the minimum advertised education requirement from job postings.

Exhibit 21: Minimum Educational Requirements for the Automated Economy in the Central Valley/Mother Lode Region, 2020 (n=1,246)
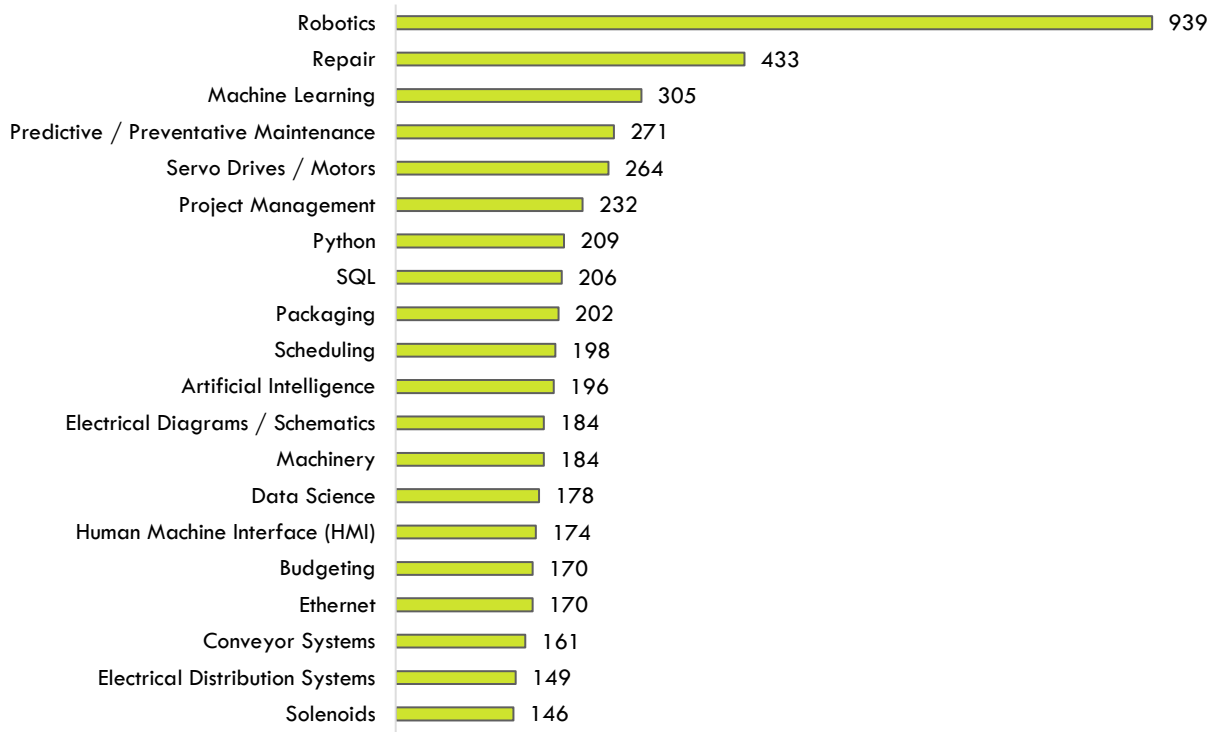

High school or vocational training	Associate degree	Bachelor's degree	Master's degree	Doctoral degree
43%	9%	39%	5%	3%
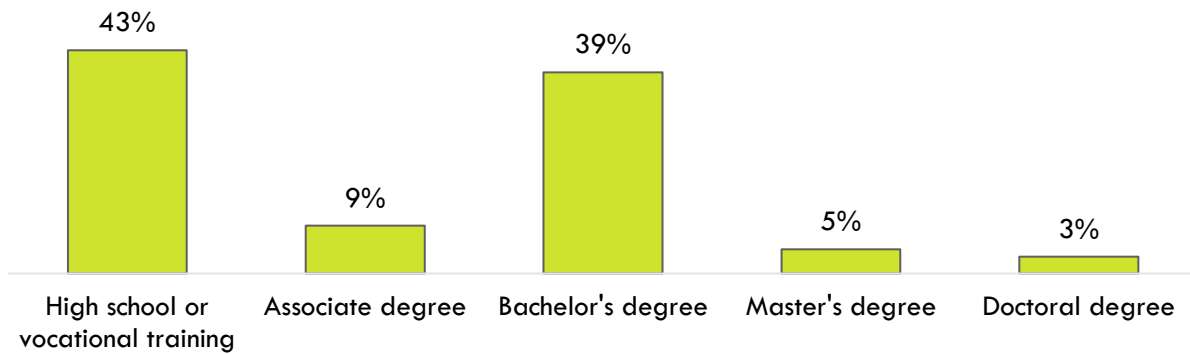
Source: Burning Glass

Skills

Exhibit 22 shows the top 20 skills requested by employers in online job postings in the Automated Economy in 2020. The top five specialized skills were robotics, repair, machine learning, predictive/preventive maintenance, and servo drives/motors.

Exhibit 22: Top Skills for the Automated Economy in the Central Valley/Mother Lode Region, 2020 (n=1,766)

Skill	Count
Robotics	939
Repair	433
Machine Learning	305
Predictive / Preventative Maintenance	271
Servo Drives / Motors	264
Project Management	232
Python	209
SQL	206
Packaging	202
Scheduling	198
Artificial Intelligence	196
Electrical Diagrams / Schematics	184
Machinery	184
Data Science	178
Human Machine Interface (HMI)	174
Budgeting	170
Ethernet	170
Conveyor Systems	161
Electrical Distribution Systems	149
Solenoids	146

Source: Burning Glass

Employers

Exhibit 23 shows the top 10 employers for job postings in the Automated Economy in 2020. The top employers in this economy cut across a variety of fields including health care, commercial real estate, online retail sales, and technology. The top employers in the Central Valley/Mother Lode Region were Anthem Blue Cross, Jones Lang Lasalle Incorporated, and Amazon.

Exhibit 23: Top Employers for the Automated Economy in the Central Valley/Mother Lode Region, 2020 (n=1,306)

Employer	Job Postings
Anthem Blue Cross	100
Jones Lang Lasalle Incorporated	84
Amazon	73
Bayer Corporation	36
Elite Line Services	28
Daifuku Incorporated	24
Tesla	23
Sutter Health	22
EJ Gallo Winery	20
University Of California	19

Source: Burning Glass

Limitations and Implications for Practice

Limitations

The analysis included in this report was conducted using the same industry, occupation, and skill filters that Burning Glass used in *After the Storm*. Though using the same filters shows the size and scale of each Recovery Economy in the Central Valley/Mother Lode Region, Burning Glass also used a proprietary method to project the growth of the five Recovery Economies through 2026. Due to the proprietary nature of Burning Glass's methodology, the CVML COE is unable to provide projections for the five Recovery Economies in the Central Valley/Mother Lode region.

Additionally, Burning Glass uses a combination of occupations, industries, and skills to define each Recovery Economy, which may lead to an overstatement of the size of each economy. For example, the Remote Economy includes 77 occupations ranging from engineering to health, education, and office/clerical positions. However, the extent to which a significant percentage of workers in these occupations will continue working remotely is unclear. While one poll from Gallup showed that 51% of workers conducted their jobs remotely in April 2021, the percentage of workers varied greatly based on job type.[3] Additionally, estimates from the US Census Bureau's Household Pulse Survey show that nearly 37% of workers worked remotely due to the COVID-19 pandemic; however, remote work was highly correlated with higher income and greater educational attainment.[4] By including all jobs within the 77 Remote Economy occupations, Burning Glass, and this report, may overestimate the size of that economy. Although this section uses the Remote Economy as an example, similar issues exist for the four other Recovery Economies.

Finally, although online job postings can help identify labor market trends, it is important to note that online job postings do not equal labor market demand. Employers may list jobs that they do not intend to fill to build a pool or pipeline of potential candidates for future openings or they may use a single posting to hire several workers for a specific job. Additionally, some industries such as construction fill openings through other means such as apprenticeship and are typically underrepresented in online job postings.

Implications for Practice

Although the number of online job postings are not equivalent to labor market demand, they are a rich resource that can be used to identify in-demand skills and serve as a measure of individual employer activity. Community colleges in the region can use this report to see how current programs align with the skills that employers request in online job postings. For example, project management was frequently requested by employers in all five Recovery Economies. Community colleges should consider embedding project management skills in existing programs and can also consider creating new skills-based project management certificates.

Community colleges throughout the region can also use the information included in this report to identify employers that should be included in engagement strategies. Partnerships between education and industry could create better alignment between the skills that employers seek and those that are embedded in community college career education programs.

The five Recovery Economies account for 19% of all online job postings in the Central Valley/Mother Lode region in 2020. Of the postings related to the five Recovery Economies,

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[3] https://news.gallup.com/poll/348743/seven-u.s.-white-collar-workers-still-working-remotely.aspx
[4] https://www.census.gov/library/stories/2021/03/working-from-home-during-the-pandemic.html

83% are for the Remote Economy. The remaining four Recovery Economies represent only a small fraction of overall job posting activity in the Central Valley/Mother Lode Region. Additionally, about half, 45.8%, of the job postings associated with the Recovery Economies requested a bachelor's, master's, or doctoral degree as the minimum education level. Another substantial proportion requested less than a college education. Overall, 47.7% of job postings for all five Recovery Economies requested a high school diploma or vocational training. Only 6.5% of job postings for the Recover Economies requested an associate degree. Of the five, the Remote Economy had the highest number of job postings with an associate degree, a total of 2,240.

Although it is common for employers to use job postings as a "wish list," it is important for community college stakeholders to consider the costs and benefits of focusing on a small subset of the overall labor market. Community colleges throughout the region should consider aligning skills and programs with other significant segments of the regional labor market in addition to identifying new and emerging areas such as those identified in *After the Storm*. A comprehensive, rather than narrow, approach to meeting regional employers' needs will be most effective in meeting workforce demand and helping students obtain employment in stable, in-demand, living wage occupations.