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Program Endorsement Brief: 0946.10/Energy Systems Technology
Solar Installation and Maintenance

Los Angeles/Orange County Center of Excellence, October 2018

Summary:

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide regional labor market supply and demand data related to solar installation and maintenance. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with relevant occupations.

The following summarizes key findings from this data brief:

- The number of jobs for solar installation and maintenance-related jobs is projected to increase by 24% over the next five years. There are projected to be nearly 350 job openings annually due to new job growth and replacement need (e.g. retirements).
- Over the past 12 months, there have been over 214 online job postings related to solar installation and maintenance in Los Angeles and Orange Counties.
- Seven colleges in the region have programs in energy systems technology – which is closely related to solar installation and maintenance.
- Between 2014 and 2017, community colleges in the region conferred an average of 54 awards (associate degrees and certificates) in related training programs.

Occupational Demand—In Los Angeles/Orange County, the number of jobs for solar installation and maintenance-related occupations (listed in Appendix C) is projected to increase by 24%. There will be nearly 350 job openings per year through 2022. (Exhibit 1).

NOTE: The data presented for one of the occupations is based on the broader 6-digit SOC code for Construction and Related Workers, All Other (47-4099).

Exhibit 1: Occupational demand in Los Angeles and Orange Counties[1]

Geography	2017 Jobs	2022 Jobs	2017-2022 Change	2017-2022 % Change	Annual Openings
Los Angeles	1,238	1,481	243	20%	188
Orange	870	1,142	272	31%	157
Total	**2,108**	**2,623**	**515**	**24%**	**345**

[1] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Wages—Entry-level wages for solar installation and maintenance positions in the region are between $13.79 and $14.48. Entry-level wages are higher than the MIT Living hourly wage for one adult in Los Angeles County, yet lower than in Orange County ($13.54 in Los Angeles County, $15.31 in Orange County). Experienced workers earn between $28.12 and $43.40, which is higher than the living wage.

Job Postings—There were 214 online job postings related to solar installation and maintenance listed in the past 12 months. The majority of job postings were for solar installer, solar technician, and repair technician. Top specialized skills are: solar installation, solar panels, electrical work and photovoltaic (PV) systems. The top five employers, by number of job postings, in the region are: LA Solar Group, Hyperion Solar Energy, Sunrun, Tesla, and Vivint Solar.

Educational Attainment—The BLS lists high school or vocational training as the typical entry-level education for both occupations. The national-level educational attainment data indicates 28% of workers in the field have completed some college or an associate degree. In Los Angeles/Orange County, 50% of job postings request a Bachelor's degree and 48% request high school or vocational training.

Community College Supply—Appendix B shows the annual and three-year average number of awards conferred by community colleges in the related TOP code: Energy Systems Technology (0946.10). The colleges with the most completions in the region are: LA Trade-Tech, Rio Hondo, and Santa Monica. Between January and September 2018, there were no other community college requests for data related to a similar program.

Most colleges in California use the TOP code Energy Systems Technology (0946.10) for solar technician and/or installation programs. Local program names for the regional solar program providers are included in Appendix B.

Appendix A: Occupation codes for solar installation and maintenance jobs

For occupational demand and wage data, standard occupational classification (SOC) codes were used: Solar Photovoltaic Installers (47-2231) and Construction and related Workers, All Other (47-4099).

For job postings data, new and emerging O*NET codes and related SOC codes were used: Solar Energy Systems Engineers (17-2199.11), Solar Energy Installation Managers (47-1011.03), Solar Installers (47-2231) and Solar Thermal Installers and Technicians (47-4099.02), as well as job titles "solar install*", "solar repair*" and "solar maint*".

Appendix B: Regional community college awards (certificates and degrees), 2014-2017

TOP Code	Program	College	Local Program Name	2014-2015 Awards	2015-2016 Awards	2016-2017 Awards	3-Year Award Average
0946.10	Energy Systems Technology	Golden West	Solar Energy	1	-	3	2
		LA Trade-Tech	Solar PV Installation & Maintenance; Renewable Energy Technician	30	20	31	27
		LA Valley	Solar Energy Design & Management	-	5	1	3
		Mt San Antonio	Building Automation	4	1	2	2
		Pasadena	Photovoltaic Design & Installation	-	-	4	4
		Rio Hondo	Alternative Energy Technology	12	16	11	13
		Santa Monica	Solar Photovoltaic Installation	4	5	11	7
			Total	**51**	**47**	**63**	**54**

Appendix C: Occupational demand and wage data by county

Exhibit 3. Los Angeles County

Occupation (SOC)	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Solar Thermal Installers and Technicians (47-4099.02)*	816	855	39	5%	95	$14.49	$20.51	$42.01
Solar Photovoltaic Installers (47-2231)	422	625	203	48%	94	$13.84	$18.36	$28.36
Total	**1,238**	**1,481**	**243**	**20%**	**188**	**-**	**-**	**-**

*The data presented for this occupation is based on the broader 6 digit SOC code for Construction and related Workers, All Other (47-4099)

Exhibit 4. Orange County

Occupation (SOC)	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Solar Thermal Installers and Technicians (47-4099.02)*	504	544	40	8%	62	$14.54	$22.84	$43.60
Solar Photovoltaic Installers (47-2231)	367	598	231	63%	95	$13.72	$18.52	$27.48
Total	**870**	**1,142**	**272**	**31%**	**157**	**-**	**-**	**-**

*The data presented for this occupation is based on the broader 6 digit SOC code for Construction and related Workers, All Other (47-4099)

Exhibit 5. Los Angeles and Orange Counties

Occupation (SOC)	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Solar Thermal Installers and Technicians (47-4099.02)*	1,319	1,399	80	6%	157	$14.48	$21.34	$43.40
Solar Photovoltaic Installers (47-2231)	789	1,223	434	55%	188	$13.79	$18.45	$28.12
Total	**2,108**	**2,623**	**515**	**24%**	**345**	**-**	**-**	**-**

*The data presented for this occupation is based on the broader 6 digit SOC code for Construction and related Workers, All Other (47-4099)

Appendix D: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (EMSI)
- Employment Development Department, Labor Market Information Division, OES
- Employment Development Department, Unemployment Insurance Dataset
- Living Insight Center for Community Economic Development
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- MIT Living Wage

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